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Vol. 11 *March 1949* No. 3

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BIBLIOGRAPHY
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ERRATA

The following reports are no longer available from the American Chemical Society but can be purchased from the Office of Technical Services:

PB 81393 MILLER, W. T. Preparation of low polymers of trifluorochloroethylene and their utilization for the production of chlorofluorocarbon lubricants. Mar 1947. 23p tables
Microfilm $2.00 Photostat $3.75
(Bib. v.8—p.489)

PB 81395 MURRAY, R. L. and others. Mechanical fluorine compression. Dec 1946. 9p diagrs.
Microfilm $1.25 Photostat $1.25
(Bib. v.8—p.489)

Correction

PB 70421t I.G. FARBENINDUSTRIE A.G., OFFENBACH, GER.
Process for manufacture of naphthol AS-BO.
Dec 1948. 5p
(Available from Research Information Service, 509 Fifth Avenue, New York 17, N. Y.—$7.50)
(Bib. v.11—p.109)
(Should be PB 70421t5)

APPAREL

PB 96476

Lafferty, R. H. and others.

Effect of liquid fluorine on some protective gloves. Nov 1947. 8p photos (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

The effect of liquid fluorine on rubber, leather, and cotton gloves is described. These tests were run to determine how much protection gloves would give from liquid fluorine. It was found that the rubber gloves burned actively in the fluorine, leather gloves smoldered, and cotton gloves exploded violently. Pictures are presented to show the effect of the liquid fluorine cotton explosion on the laboratory equipment used in the experiment. AECD 1848

PB 94971

McDermott, R. F.

Service test of tropical uniform (shorts, long trousers, bush jacket, tropical helmet, and sandals). Dec 1948. 33p photos, tables Mi $2.25 Ph $5.00

1. Clothing, Tropical 2. Uniforms, Tropical 3. AFGC 34825-5

PB 94654s

Michael, L. E.

Salt spray test on "Andal" life vest inflators. Oct 1948. 4p tables Mi $1.25 Ph $1.25

Supplement 1 to PB 94654

1. AAF TSEAA MR 670-2-A, Add. 1

PB 95836

Plotkin, A.

Quadrilateral amputee civilian clothing. Oct 1948. 124p illus Mi $2.00 Ph $3.75

1. Amputees—Rehabilitation 2. Clothing, Amputee 3. AAF TSEAA MR 666-24

PB 66092r

U. S. Air Force.

General: Replacement of commercial type safety belts. Apr 1948. 10p drawings Mi $1.25 Ph $1.25

1. AAF TO 01-1-274, rev.

PB 96238

U. S. Air Force and U. S. Navy Dept.

Tester-anti G suit regulating valve. Dec 1948. 1p drawing Mi $1.25 Ph $1.25

1. Valves, Regulator 2. AN 6539

CHEMICALS AND ALLIED PRODUCTS

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Drugs and Pharmaceuticals

PB 96330

Coghill, Robert D.

Penicillin. Interim report no. 23. Apr 1945. 22p graph, tables Mi $2.00 Ph $3.75

A number of superior penicillin-producing molds are now available. A culture of *Penicillium notatum*, NRRL 1978.B2, recommended for surface production, gives yields about 25 percent better than *P. notatum* NRRL 1249.B21. Cultures of *Penicillium chrysogenum*, NRRL 1975.B (derived from Minnesota R-123), and NRRL 1984.A (derived from Minnesota R-13) have given submerged yields of 250 to 260 units per ml, which is in excess of the 185-unit yields usually obtained from *P. chrysogenum* NRRL 1951.B25. Some of the ultraviolet and X-ray induced mutations of NRRL 1951.B25 from Stanford University give submerged yields slightly in excess of those obtained from NRRL 1951.B25. Strain X-1612, an X-ray induced mutation produced from NRRL 1951.B25 by Dr. Demerec and associates at the Carnegie Institution, has given yields of 350-400 units per ml in drum and vat fermenters. These yields are almost as high as those reported by the Wisconsin workers for this organism. The production of various quantities of chloroform-insoluble penicillin (probably Penicillin X) in surface cultures has been demonstrated for all of ten organisms tested; however, NRRL 1249.B21 is much superior to other strains for this purpose. NRRL 1978.B2 does not produce as much chloroform-insoluble penicillin, although it produces more total penicillin. A concentrated medium, containing at least 4 percent of lactose and 8 or 10 percent of steep liquor by weight, appears to be best for the production of a large quantity of chloroform-insoluble penicillin, which usually comprises 30 to 50 percent of the total penicillin produced on these media by NRRL 1249.-B21. The addition of phenylacetic acid to surface cultures markedly inhibits, but does not entirely suppress, the production of Penicillin X-like material. The addition of p-hydroxyphenylacetic acid to surface cultures has no effect on total yield or on the production of Penicillin X. Surface cultures started at pH 4.2 to 5.5 produce the most total penicillin and the most chloroform-insoluble penicillin. The production of appreciable quantities of chloroform-insoluble penicillin in submerged culture has been demonstrated only with NRRL 1984.A, the yields being upwards of 15 percent of the total penicillin produced. Fortunately, this organism is one of the best available for submerged penicillin production. Although NRRL 1249.B21 is the best culture for Penicillin X production in surface culture, it is not a good submerged organism, and attempts to cultivate it submerged for

Penicillin X production have not been fruitful. Strain X-1612 does not produce any Penicillin X-like material under the conditions employed in the vat fermenter. β-Phenylethyl-amine accentuates the production of Penicillin G in both surface and submerged cultures. No compounds yet tested have stimulated the production of Penicillin X-like material.

PB 95621

France. Ministére de la Production.

Laboratory reports covering drug and pharmaceutical research including vitamins. 1930-1945. 500f (Text in German) Mi $9.00 Enl Pr $65.00

See PB 95621s for abstracts. 9p. Mi $1.25 Ph $1.25

1. Drugs—Production—Germany 2. Pharmaceuticals—Production—Germany 3. Vitamins—Production—Germany 4. Micro FIAT A 345, Frames 2707-3207

PB 95602

France. Ministére de la Production.

Miscellaneous reports dealing with drugs and pharmaceuticals. 1935-1946. 242f (Text in German or English) Mi $9.00 Enl Pr $32.50

See PB 95602s for abstracts. 9p Mi $1.25 Ph $1.25

1. Drugs—Production—Germany 2. Pharmaceuticals—Production—Germany 3. Micro FIAT A 332, Frames 7334-7575

PB 95602

I. G. Farbenindustrie A. G., Elberfeld, Ger.

Manufacturing instructions for 34 pharmaceutical products. 1935-1946. Frames 7334-7496 (Text in German or English) Enl Pr $22.50

1. Pharmaceuticals—Production—Germany 2. Micro FIAT A 332, Frames 7334-7496 3. Micro BIOS FD 1181/47, Frames 7334-7496

PB 95602

I. G. Farbenindustrie A. G., Höchst, Ger.

Various production and research activities of the Höchst works. 1945. Frames 7497-7566 (Text in German) Enl Pr $10.00

1. Chemistry—Research—Germany 2. Micro FIAT A 332, Frames 7497-7566 3. Micro BIOS FD 3440/46, Frames 7497-7566

PB 95602

I. G. Farbenindustrie A. G., Höchst, Ger.

Report on the preparation of pharmaceuticals. 1943. Frames 7567-7575 (Text in German) Enl Pr $2.50

1. Pharmaceuticals—Production—Germany 2. Micro FIAT A 332, Frames 7567-7575 3. Micro BIOS FD 3447/46, Frames 7567-7575

PB 93712

Kolle, W. and Leupold, F.

Official test of Salvarsan and its experimental bases. 1927. 60p (Text in German) Mi $2.75 Ph $7.50

Historical data concerning the necessity for a standard Salvarsan, and specifications on official tests of Salvarsan, Silbersalvarsan, Neosilbersalvarsan, Salvarsan-Sodium, and Sulfoxylsalvarsan. FIAT MCF 466.

PB 95812

U. S. 5250th Technical Intelligence Co.. Medical Analysis Section, Tokyo.

Carvason ampoules, 20%. (Sodium para-sulfonamid-phenylamine-methanesulfonate). May 1946. 6p photos Mi $1.25 Ph $1.25

1. Carvason ampoules, 20% 2. Streptococcuc infections—Therapy—Japan. 3. Staphylococcus infections—Therapy—Japan 4. Sodium-sulfonamid-phenylamine-methanesulfonate 5. ATIC-T MAS-220

PB 95815

U. S. 5250th Technical Intelligence Co.. Medical Analysis Section, Tokyo.

Langela; iszilin; fischlin; fiselin. (Insulin injections). May 1946. 15p photos Mi $1.75 Ph $2.50

1. Insulin—Japan 2. ATIC-T MAS-223

PB 95814

U. S. 5250th Technical Intelligence Co.. Medical Analysis Section, Tokyo.

Lichtenin. (Compound solution of sodium 8-ethozy-quinoline-5 sulfonate). Jul 1946. 5p Mi $1.25 Ph $1.25

1. Quinoline—Japan 2. Adrenalin—Derivatives—Japan 3. Lichtenin—Japan 4. ATIC-T MAS-243

PB 95816

U. S. 5250th Technical Intelligence Co.. Medical Analysis Section, Tokyo.

Pronptin. (p-Sulfonamide-phenyl-azo-apoquinine). Jul 1946. 8p photos Mi $1.25 Ph $1.25

1. p-Sulfonamide-phenyl-azo-apoquinine 2. ATIC-T MAS-241

PB 95822

U. S. 5250th Technical Intelligence Co.. Medical Analysis Section, Tokyo.

Rodealin. (Preparations of rhodea japonica roth). Jul 1948 9p photos Mi $1.25 Ph $1.25

1. Rodealin (Trade name)—Japan 2. Cardiovascular drugs—Japan 3. ATIC-T MAS-248

PB 95817

U. S. 5250th Technical Intelligence Co.. Medical Analysis Section, Tokyo.

Supon. (Dihydrostilboestrol). May 1946. 8p illus, diagrs Mi $1.25 Ph $1.25

I. Hormones, Estrongenic—Japan 2. Dihydrostilboestrol—Japan 3. 4,4' Stilbendiol, L,L'—Diethyl—Japan 4. ATIC-T MAS-221

Dyes

PB 95948

Farben-zeitung. (Dyes industry).

Trade journal. v. 44, nos. 42-52. 1939 v. 45, nos. 1-52. Jul-Dec 1940. v. 46, nos. 1-52. Jan-Jun 1941.

Market reports v. 44, nos 26-52. 1939 571f (Text in German) Mi $9.00 Enl Pr $75.00

I. Dyes—Periodicals—Germany 2. Micro FIAT E 122, Frames 5051-5622

PB 95617

France. Ministére de la Production

Miscellaneous reports dealing with dyestuffs. 1931-1945. 524f (Text in German or English) Mi $9.00 Enl Pr $68.75

See PB 95617 for abstracts. 19p. Mi $1.75 Ph $2.50

I. Micro FIAT A 326, Frames 5262-4786

PB 95617

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.

Synthesis of acetic acid through the reaction of carbon monoxide on methanol, by Kröpfer, Pistor and v. Kutepow. 1942. Frames 4264-4333 (Text in German) Enl Pr $10.00

I. Acetic acid—Synthesis—Germany 2. Kröpfer (Dr.) 3. Pistor (Dr.) 4. Kutepow, v. (Dr.) 5. Micro FIAT A 326, Frames 4264-4333 6. Micro BIOS FD 3100/46, Frames 4264-4333

PB 95617

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.

A method for catalytic reduction of free fatty acids to their corresponding alcohols. 1940. Frames 4334-4340 (Text in German) Enl Pr $2.50

I. Fatty acids—Hydrogenation—Germany 2. Micro BIOS FD 3120/46, Frames 4334-4340 3. Micro FIAT A 326, Frames 4334-4340

PB 95617

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.

Vapour pressure, specific weight, and viscosity of amines. 1944. Frames 4341-4351 (Text in German) Enl Pr $2.50

I. Amines, Aliphatic—Tests—Germany 2. Micro FIAT A 326, Frames 4341-4351 3. Micro BIOS FD 3150/46, Frames 4341-4351

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PB 95617

I. G. Farbenindustrie A. G.

Textile auxiliary products and processing of textiles. 1940-1945. Frames 4352-4518 (Text in German and English) Enl Pr $22.50

I. Textile aids—Preparation—Germany 2. Textiles—Processing—Germany 3. Micro FIAT A 326, Frames 4352-4518 4. Micro BIOS FD 3202/46, Frames 4352-4518

PB 95617

I. G. Farbenindustrie A. G., Mainkur, Ger.

Manufacture of thioindigoid and sulphur dyestuffs. 1931-1942. Frames 4519-4589 (Text in German) Enl Pr $10.00

Duplicate of PB 74388 (Bib. v. 7, p 792)

PB 95617

I. G. Farbenindustrie A. G., Offenbach, Ger.

The preparation of naphthols (dyestuffs). 1931-1943. Frames 4581/4706 (Text in German) Enl Pr $17.50

Duplicate of PB 74202 (Bib. v. 6, p 471)

PB 95617

I. G. Farbenindustrie A. G., Offenbach, Ger.

Research work on dyestuffs and intermediate products. 1945. Frames 4707-4786 (Text in German) Enl Pr $11.25

Duplicate of PB 74225 (Bib. v. 6, p. 580)

PB 74025t4

I. G. Farbenindustrie A. G.

Process for preparing metachrome blue black G. Mar 1948. 3p Available from Research Information Service, 509 Fifth Avenue, New York 17, N. Y. $7.00

I. Metachrome blue black G (Trade name) 2. Micro FIAT CC 81, Frames 1250-1252, trans.

PB 70426t

I. G. Farbenindustrie A. G., Leverkusen, Ger.

Peroxide-fast combinations of black on the basis of naphthol AS-SG and AS-SR. 1948. 8p tables Available from Research Information Service 509 Fifth Ave., N. Y. 17, N. Y. at $7.50

Translation 1 of PB 70426

I. Micro FIAT E 23, Frames 5461-5465, trans

PB 70135t2

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.

Constitution of fanal dyes and the concept of pure dye content: Fanal red B supra. 1948. 3p Available from Research Information Service 509 Fifth Ave., N. Y. 17, N. Y. at $1.50

Translation 2 of PB 70135

I. Micro FIAT G 18, Frames 1492, trans.

Detergents

PB 74067t10

I. G. Farbenindustrie A. G., Höchst, Ger.
Detergent and dyeing auxiliary Igepal C highly conc. Dec 1948. 5p tables Available from Research Information Service 509 Fifth Ave., N. Y. 17, N. Y. at $3.00
Translation 10 of PB 74067
1. Detergents—Production—Germany 2. Igepal C highly conc. (Trade name) 3. Micro FIAT CC 122, Frames 432-434, trans.

PB 74067t

I. G. Farbenindustrie A. G., Höchst, Ger.
Detergent "Igepon AP highly conc.". Sep 1948. 4p Available from Research Information Service, 509 Fifth Avenue, New York, N. Y. $3.25
1. Micro FIAT CC 122, Frames 371-374, trans

PB 74067t9

I. G. Farbenindustrie A. G., Höchst, Ger.
Detergent Igepal B. Dec 1948. 6p tables Available from Research Information Service 509 Fifth Ave., N. Y. 17, N. Y. at $3.25
Tranlation 9 of PB 74067
1. Detergents—Production—Germany 2. Igepal B (Trade name) 3. Micro FIAT CC 122, Frames 425-428, trans.

PB 74067t4

I. G. Farbenindustrie A. G., Höchst, Ger.
Detergent Mersolat SW. Dec 1948. 3p tables Available from Research Information Service 509 Fifth Ave., N. Y. 17, N. Y. at $2.50
Translation 4 of PB 74067
1. Detergents—Production—Germany 2. Mersolat SW (Trade name) 3. Micro FIAT CC 122, Frames 265-266, trans.

PB 74067t6

I. G. Farbenindustrie A. G., Höchst, Ger.
Detergent powder Igepon T highly conc. Dec 1948. 6p tables Available from Research Information Service 509 Fifth Ave., N. Y. 17, N. Y. at $3.25
Translation 6 of PB 74067
1. Detergents—Production—Germany 2. Igepon T powder highly conc. (Trade name) 3. Micro FIAT CC 122, Frames 378-381, trans.

PB 74806s

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Production of scouring agents and detergents on the basis of mineral oils and hydrocarbons. Abstracts. 1935-1945. 10p Mi $1.25 Ph $1.25
1. Micro FIAT O 45, Frames 2364-3215, abstracts 2. Micro BIOS FDX 98

Plastics and Plasticizers

PB 96702

Battelle Memorial Institute, Columbus, Ohio
Literature survey on the properties of plastics influencing their stability in storage. Artillery storage program. May 1946. 104p graphs, tables Mi $4.50 Ph $13.75
To be published in Modern Plastics Encyclopedia, 1949.
1. Plastics—Stability 2. Artillery—Storage

PB 37243t

Kuch, W. and Perkuhn, H.
Researches on the elasticity of transparent plastics. Aug 1940. 4p photo, table Mi $1.25 Ph $1.25
Translation of PB 37243
Legends in German
In order to create a basis for the calculation of the windows of pressure chambers in high-altitude aircraft, the coefficient of lateral control of transparent synthetic materials employed in aircraft engineering (Plexiglas, Astralon and Reilit) is determined by tensile test. ZWB FB 1263, translation.

PB 95348

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Iganil types 63 and 94—plastic products. 1941. 17f (text in German) Mi $1.75 Enl Pr $3.75
See PB 95348s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Iganil (Trade name) 2. Micro BIOS FD 2490/47, Frames 1-16

PB 95352

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Igevin J. ZR. 1942. 9f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 95352s for abstracts. 2p. Mi $1.25 Ph $1.25
1. Adhesives—Germany 2. Igevins (Trade name) 3. Micro BIOS FD 2494/47, Frames 1-8

PB 95350

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Igevin J 60 D. 1941. 5f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 95350s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Igevins (Trade name) 2. Plastics—Germany 3. Micro BIOS FD 2495/47, Frames 1-4

PB 95232

I. G. Farbenindustrie A. G., Rheinfelden, Ger.
General report on personnel and products. 1945. 35f (Text in French and German) Mi $2.25 Enl Pr $6.25
See PB 95232s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Igelit (Trade name) 2. Micro BIOS FD 1658/48, Frames 213-247

PB 95349

I. G. Farbenindustrie A. G., Schkopau, Ger.
Igelit PCU plant: Laboratory report on additives to Igelit PCU plasticizers for P-soles. 1943. 12f (Text in German) Mi $1.75 Enl Pr $3.75

See PB 95349s for abstracts. 2p. Mi $1.25 Ph $1.25

I. Igelit PCU (Trade name) 2. Micro BIOS FD 2337/47, Frames I-II

PB 95156

I. G. Farbenindustrie A. G., Schkopau, Ger.

Plastic products: Coloured Igamid A and B of uniform size. 1944. 5f (Text in German) Mi $1.25 Enl Pr $2.50

See PB 95156s for abstracts. 2p. Mi $1.25 Ph $1.25

I. Plastics—Germany 2. Igamid (Trade name) 3. Micro BIOS FD 2474/47, Frames I-4

PB 95345

I. G. Farbenindustrie A. G., Schkopau, Ger.

Plastic products: High pressure packings. 1942-1945. 13f (Text in German) Mi $1.75 Enl Pr $3.75

See PB 95345s for abstracts. Ip. Mi $1.25 Ph $1.25

I. Igamid (Trade name) 2. Packings, Plastic—Germany 3. Bearings, Plastic—Germany 4. Micro BIOS FD 2440/47, Frames I-12

PB 95154

I. G. Farbenindustrie A. G., Schkopau, Ger.

Plastic products: Igamid-wire for welding and for the Schoop-spraying process. 1941. 13f (Text in German) Mi $1.75 Enl Pr $3.75

See PB 95154s for abstracts. 2p. Mi $1.25 Ph $1.25

I. Plastics—Germany 2. Igamid (Trade name) E. Schoop spraying process—Germany 4. Plastics—Molding, injection—Germany 5. Micro BIOS FD 2483/47, Frames I-12

PB 95590

I. G. Farbenindustrie A. G., Schkopau, Ger.

Plastic products: "Mowital" (polyvinylacetale) mass, a thermoplastic, plasticizer containing vinyl polymer, also produced in solution from. 1940-1943. 31f (Text in German) Mi $2.25 Enl Pr $6.25

See PB 95590s for abstracts. 2p. Mi $1.25 Ph $1.25

I. Mowital (Trade name) 2. Micro BIOS FD 2513/47, Frames I-30

PB 95137

I. G. Farbenindustrie A. G., Schkopau, Ger.

Plastic products: Pervinan. 1942-1945. 68f (Text in German) Mi $3.00 Enl Pr $10.00

See PB 95137s for abstracts. 2p. Mi $1.25 Ph $1.25

I. Pervinan (Trade name) 2. Micro BIOS FD 2527/47, Frames I-67

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PB 95146

I. G. Farbenindustrie A. G., Schkopau, Ger.

Plastic products: Plasticizers "Plastomoll TB" and "Plastomoll TAH". 1942-1943. 6f (Text in German) Mi $1.25 Enl Pr $2.50

See PB 95146s for abstracts. Ip. Mi $1.25 Ph $1.25

I. Plastics—Germany 2. Plastomoll (Trade name) 3. Micro BIOS FD 2530/47, Frames I-5

PB 95153

I. G. Farbenindustrie A. G., Schkopau, Ger.

Plastic products: Trixylenyl phosphate (Softener X). 1944. 3f (Text in German) Mi $1.25 Enl Pr $2.50

See PB 95153s for abstracts. Ip. Mi $1.25 Ph $1.25

I. Plastics—Germany 2. Plasticizers—Germany 3. Igelit (Trade name) 4. Micro BIOS FD 2547/47, Frames I-2

PB 95157

I. G. Farbenindustrie A. G., Schkopau, Ger.

Plastic products Gerlon 2 (Hoe 86) and Gerlon 3. 1943-1944. 18f (Text in German) Mi $1.75 Enl Pr $3.75

See PB 95157s for abstracts. 2p. Mi $1.25 Ph $1.25

I. Plastics—Germany 2. Hö (Trade name) 3. Gerlon (Trade name) 4. Micro BIOS FD 2468/47, Frames I-17

PB 95358

I. G. Farbenindustrie A. G., Uerdingen, Ger.

Moton SD—plastic product. 1943. 2f (Text in German) Mi $1.25 Enl Pr $2.50

See PB 95358s for abstracts Ip. Mi $1.25 Ph $1.25

I. Motion SD (Trade name) 2. Plastics—Germany 3. Micro BIOS FD 2506/47, Frame I

PB 94863

Slade, G. Hermon

Plasticisers for polyvinyl chloride. Dec 1946. 8p table Mi $1.25 Ph $1.25

I. Polyvinyl chloride—Plasticizers—Germany 2. I. G. Farbenindustrie A. G., Leverkusen, Ger. 3. BIOS FR 1793, Item 22

PB 94861

Slade, G. Hermon

Synthetic resin adhesives: Heinkel & Co. Dec 1946. 4p Mi $1.25 Ph $1.25

I. Adhesives, Synthetic—Production—Germany 2. Heinkel & Co., Düsseldorf, Ger. 3. BIOS FR 1795, Item 22

PB 94862

Slade, G. Hermon

Synthetic resins for surface coatings. Dec 1946. 19p tables Mi $1.75 Ph $2.50

1. Resins, Synthetic—Uses—Germany 2. Coatings, Protective—Germany 3. Chemische Werke Albert, Wiesbaden, Ger. 4. Herberts, Kurt & Co., Wuppertal, Ger. 5. BIOS FR 1794, Item 22

Paints, Varnishes and Lacquers

PB 74279s

Chemische Werke Albert, Wiesbaden, Ger.

Lacquers and coating compositions made by C.W. Albert. Abstract. 1923-1940. 8p Mi $1.25 Ph $1.25

1. Micro FIAT EE 5, Frames 1-84, abstract 2. Micro BIOS FDX 100, abstract

PB 74691s

Deutsche Gold und Silberscheideanstalt, A. G., Frankfurt am Main, Ger.

Inorganic pigments. Abstract. 1935-1945. 14p Mi $1.75 Ph $2.50

Supplement to PB 74691

1. Micro FIAT, M-41, Frames 393-1312, abstract

PB 61958t

Giehmann, H.

Austrichnüttel für eloxierte leichmetalle. (Paints for anodized light alloys). Feb 1937. 8p photo, tables Mi $1.25 Ph $1.25

Translation of PB 61958

Legends in German

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In order that anodic coatings on light alloys should be capable of affording adequate corrosion protection, they require to be sealed. Several fatty or varnish-like substances are used for the impregnation of such coatings, the latter being more suitable for sealing. If the outer skin of an aircraft is similarly anodized, the anodic coating forming a suitable foundation for the colored varnish coating increasing its adhesion, and, consequently, its durability. ZWB UM 430, translation.

PB 91483

I. G. Farbenindustrie A. G., Schkopau, Ger.

"Alkydal" varnishes. 1934. 32f (Text in German) Mi $2.25 Enl Pr $6.25

See PB 91483s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Varnishes—Germany 2. Micro BIOS FD 2587/47, Frames 1-49

PB 96516

Olk, E.

Leimfahigkeitsuntersuchung von lignofolplatten oberflachen. (Investigation of the cementing capacity of lignofol sheet surfaces). May 1943. 9p illus, tables Mi $1.25 Ph $1.25

Experience so far has shown that the outside cementing capacity of Lignofol surfaces must be regarded as unsatisfactory, and these surfaces are therefore supplied by the maker with a strong external beech veneer in order to ensure a good joint with other materials such as plywood. With two such sample sheets, supplied by Dynamit AG, we ascertained, by order of the Bad-Eilsen strength Testing Division, firstly, how far this supplementary beech veneer can be cut down without reducing the cementing capacity, and in the second place we had to find out whether any cementing capacity could be at all perceived in Lignofol sheets without an adhesion veneer. Micro GDC 16/429(e)2T, translation.

PB 96515

Olk, E.

Leimversuche mit polystalleim und kaurit—WHK—Leim. (Cementing experiments with polystal and kaurit W H K glue). Apr 1943. 8p illus, diagr, tables Mi $1.25 Ph $1.25

The recently introduced Polystal glue of the I. G. Farben had to be thoroughly tested before its adoption in the Ta 154 prototype. The following report gives the experimental results obtained by using and testing Polystal. For comparison we also conducted experiments with Kaurit WHK glue. Micro GDC 16/429e(1)T, translation.

PB 95641

U. S. Air Force and U. S. Navy Dept.

Dope: Cellulose-acetate-butyrate pigmented gloss. Air Force-Navy aeronautical specification. Nov 1948. 9p drawings, tables Mi $1.25 Ph $1.25

1. Dopes—Manufacture 2. Paints, Aircraft—Specification 3. AN-D-2a

PB 96358

Wit, N.J.C., de and Nood, J.C.G., de

Dutch report on some German wax factories. May 1947. 4p Mi $1.25 Ph $1.25

1. Factories, Waxes—Germany 2. Waxes—Germany 3. I. G. Farbenindustrie A. G., Ludwigshafen, Ger. 4. Netherlands Military Mission. Technical Research 5. BIOS M 116

PB 96356

Zijp, Ir Van

Dutch report on I.G. Farben, Urdingen: Manufacture of Kaurit Glue. n.d. 3p diagrs Mi $1.25 Ph $1.25

1. Glue, Kaurit—Germany 2. I. G. Farbenindustrie A. G., Urdingen, Ger. 3. Netherlands Military Mission. Technical Research 4. BIOS M 114

PB 95126

Ammoniawerk Merseburg G.m.b.H., Leuna, Ger.
Notes on aluminum chloride and the use of pumps for aluminum chloride containing sludge. 1944. 5f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 95126s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Aluminum chloride—Germany 2. Micro BIOS FD 2874/46, Item 70, 71, Frames 2252-2255

PB 95231

Deutsche Gold- und Silberscheideanstalt, Constance, Ger.
Preparation of hydrocyanic acid and derivatives. n.d. 1f (Text in French) Mi $1.25 Enl Pr $2.50
See PB 95231s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Hydrocyanic acid—Preparation—Germany 2. Micro BIOS FD 1655/48, Frame 196

PB 95248

Deutsche Gold- und Silberscheideanstalt, Rheinfelden, Ger.
Manufacture of hydrogen peroxide. 1945. 2f (Text in French) Mi $1.25 Enl Pr $2.50
See PB 95248s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Hydrogen peroxide—Production—Germany 2. Micro BIOS FD 1674/48, Frame 469

PB 95238

Deutsche Gold- und Silberscheideanstalt, Rheinfelden, Ger.
Manufacture of sodium peroxide. 1945. 2f (Text in French) Mi $1.25 Enl Pr $2.50
See PB 95238s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Sodium peroxide—Production—Germany 2. Micro BIOS FD 1676/48, Frame 473

PB 95528

Fuerstenhagen Powder Factory, Kassel, Ger.
Oleum works. 1945. 9f (Text in French) Mi $1.25 Enl Pr $2.50
See PB 95528s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Cryolite—Production—Germany 2. Micro BIOS FD 1685/48, Frame 6

PB 96094

Grube, G. and others.
Über die reduktion des 2-niob-5-oxydes bis zum 2-niob-1-oxyd mit wasserstoff. (On the reduction of niobium pentoxide by hydrogen). 1939. 11p graphs Mi $1.75 Ph $2.50
Reprint from Z. f. Elektrochem v. 45, 1939, pp. 885-888
Parts of this report may not reproduce well
1. Niobium pentoxide—Germany 2. Gt. Brit. Ministry of Supply 3. RTP/TIBT, translation 4. Micro GDC 233T, translation

—62231

PB 74148s

I. G. Farbenindustrie A. G., Bitterfeld, Ger.
Reports to the Chlorine Fako conference on 26-27/4/1940. Abstract. 1940-1943. 23p Mi $2.00 Ph $3.75
Supplement 1 to PB 74148
1. Micro FIAT 135-CC, Frames 1-697, abstract 2. Micro BIOS FDX 119, abstract

PB 96559

I. G. Farbenindustrie A. G., Schkopau, Ger.
Chlorine (alkaline) electrolysis, patents and processes. 1939-1944. 89f (Text in German) Mi $3.75 Enl Pr $12.50
See PB 96559s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Oleum—Production—Germany 2. Micro BIOS FD 2026/48, Frames 850-858

PB 95213

I. G. Farbenindustrie A. G., Schkopau, Ger.
Damage to the rubber lining of mercury chlorine cells. 1938. 28f (Text in German) Mi $2.00 Enl Pr $5.00
See PB 95213s for abstracts. 2p. Mi $1.25 Ph $1.25
1. Mercury chlorine cells—Germany 2. Micro BIOS FD 2076/47, Frames 1-26

PB 95208

I. G. Farbenindustrie A. G., Oppau, Ger.
Manufacture of cryolite. 1945. 6f (Text in French) Mi $1.25 Enl Pr $2.50
See PB 95208s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Chlorine—Electrolysis—Germany 2. Micro BIOS FD 2066/47, Frames 1-88

PB 96572

I. G. Farbenindustrie A. G., Schkopau, Ger.
Notes on chlorine plants and processes. 1939-1944. 41f (Text in German) Mi $2.50 Enl Pr $7.50
See PB 96572s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Chlorine—Production—Germany 2. Micro BIOS FD 2074/47, Frames 1-40

PB 95490

I. G. Farbenindustrie A. G., Uerdingen, Ger.
Manufacture of almost chemically pure chromic acid. Methods of colouring metal articles. n.d. 3f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 95490s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Chromic acid—Germany 2. Metals—Coloring—Germany 3. Micro BIOS FD 4279/47, Frames 1-3

PB 95310

Kingston, H. E. and Markward, H. G.
Manufacture of saltcake and hydrochloric acid in the Manheim area and in Grevenbrueck. Jul 1948. 19p Mi $1.75 Ph $2.50
1. Hydrochloric acid—Preparation—Germany 2. Sodium sulfates— Production—Germany 3. Goldschmidt, Theodor, A. G., Mannheim, Ger. 4. BIOS FR 1789, Item 22

PB 96167

Schneider, A. and Walter, P.

Die beeinflussung der reaktionsgeschwindigkeit durch flussmittel bei der silicothermischen reduktion von magnesiumoxyd. (The influence of fluxes on the rate of reduction during the silico-thermal reduction of magnesium oxide). n.d. 7p diagrs Mi $1.25 Ph $1.25

Legends in German

1. Kaiser Wilhelm Institut für Metallforschung, Stuttgart, Ger. 2. Magnesia—Reduction—Germany 3. Micro GDC 389T, translation

PB 96168

Schneider, A. and Hutt, G.

Über die thermische reduktion von magnesiumoxyd mit calciumcarbid. (The thermal reduction of magnesium oxide with calcium carbide). Apr 1944. 34p diagrs, tables Mi $2.25 Ph $5.00

Legends in German

1. Magnesia—Reduction—Germany 2. Calcium carbide—Germany 3. Micro GDC 390T, translation

PB 95205

Wurster, Carl

Interrogation of Dr. Carl Wurster on the inorganic chemical industry. 1946. 16f (Text in French) Mi $1.75 Enl Pr $3.75

See PB 95205s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Chemistry, Inorganic—Germany 2. I. G. Farbenindustrie A. G., Ludwigshafen, Ger. 3. Micro BIOS FD 1646/48, Frame 16

Chemical Engineering and Equipment

PB 95120

Ammoniawerk Merseburg G.m.b.H., Leuna, Ger.

Heat exchange and insulation materials in high-pressure plant, etc. 1940-1943. 30f (Text in German) Mi $2.00 Enl Pr $5.00

See PB 95120s for abstracts. 2p. Mi $1.25 Ph $1.25

1. Ammonia—Germany 2. Heat exchange—Germany 3. Insulating materials—Germany 4. Micro BIOS FD 1049/48, Frames 1-29

PB 95961

Chemiker zeitung. (Chemists journal). v. 68, Nos. 1-12. 1944. v. 69, Nos. 1-2 1945.

Chemische apparatur. (Chemical apparatus). v. 28, Nos. 10-24. 1941. v. 29, Nos. 1-23. 1942. 539f (Text in German) Mi $9.00 Enl Pr $70.00

1. Chemistry—Periodicals—Germany 2. Micro FIAT K 51, Frames 4144-4666

PB 95279

Chenet, M.

Etude sur la marche acide dans les usines Francaises. (Study on the acid run in French factories). Mar 1947. 15p tables (Text in French) Mi $1.75 Ph $2.50

1. Factories— France 2. Commission d'Ingenieurs des Hauts-Fournaux Thomas

PB 95819

Gerty, L. H.

1. G. Farbenindustrie Chemische Werke Hüls near Marl, Rechlinghausen. 1945. 12p table Mi $1.75 Ph $2.50

1. Ethylene oxide—Oxidation— Germany 2. Glycol—Production—Germany 3. Chemicals—Production—Germany 4. I. G. Farbenindustrie A. G., Hüls, Ger. 5. BIOS FR 134, Item 22

PB 95818

Heppenstall, F. and others.

Manufacture of sulphuric acid. (Unterharzer Berg und Huttenwerke G.m.b.H., Goslar, Ger.). Jul 1946. 43p Mi $2.50 Ph $6.25

1. Unterharzer Berg und Hüttenwerke, G.m.b.H., Goslar, Ger. 2. Sulfuric acid—Production—Germany 3. BIOS FR 1640, Item 22

PB 95129

I. G. Farbenindustrie A. G., Hoechst, Ger.

Research reports of the Department of Physics on extracting and distilling processes. 1939-1946. 145f (Text in German) Mi $5.75 Enl Pr $20.00

See PB 95129s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Distillation—Methods—Germany 2. Chemistry, Physical—Research—Germany 3. Micro BIOS FD 4321/47, Frames 1-144 4. Micro BIOS DOC 2174/2058/4-9, Frames 1-144

PB 95204

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.

Report on a visit to the arsenic acid plant at Ludwigshafen. 1945. 3f (Text in French) Mi $1.25 Enl Pr $2.50

No abstract available

1. Arsenic—Production—Germany 2. Micro BIOS D 34, Frames 1-2

PB 95230

I. G. Farbenindustrie A. G., Oppau, Ger.

Industrial microanalysis. 1946. 109f (Text in French) Mi $4.50 Enl Pr $15.00

See PB 95230s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Microanalysis—Germany 2. Micro BIOS FD 1664/48, Frames 293-401

PB 96560

I. G. Farbenindustrie A. G., Schkopau, Ger.

Catalyst plant projects, equipment, raw materials. 1937-1944. 100f (Text in German) Mi $4.25 Enl Pr $13.75

See PB 96560s for abstracts. 2p. Mi $1.25 Ph $1.25

1. Furnaces, Catalyst—Germany 2. Catalysts—Production—Germany 3. Micro BIOS FD 2084/47, Frames 1-99

PB 95519

I. G. Farbenindustrie A. G., Uerdingen, Ger.

Calziniertrommel mit hubschaufeln 2, 2mo-17mlg. (Double conical calcining drum). n.d. 36p drawings only Mi $2.25 Ph $5.00

Legends in German

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1. Drums, Chemical 2. Chemical engineering 3. Micro BIOS FD 1123/47, Frames 1-6

PB 95027

Kebl, (Ing.) and others.

I. G. Farbenindustrie A. G. Dormagen. Jun 1947. 5p (Text in Polish) Mi $1.25 Ph $1.25

1. I. G. Farbenindustrie A. G., Dorgmagen, Ger.

PB 95432

Kern, J. G.

Catalytic processes. Aug 1945. 17p drawings Available from British Information Service, 30 Rockefeller Plaza, New York 20, N. Y. $.70

1. Catalysis 2. Ethyl alcohol—Production—Germany 3. Reduction, Catalytic—Germany 4. Nitramines—Preparation—Germany 5. BIOS MR 93

PB 95497

Martinswerke G.m.b.H., Bergheim, Ger.

Drawing of filters. 1937-1938. 17f Mi $1.75 Enl Pr $3.75

See PB 95497s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Filter, Chemical—Germany 2. Micro BIOS FD 1118/47, Frames 1-3 3. Micro BIOS DOC 2552/2290, Frames 1-3

PB 94994

Pickering, H. D. and Walters, J. Price.

German bottled gas industry. Feb 1947. 27p photos, drawings, graph, table Mi $2.00 Ph $3.75

1. Walters, J. Price 2. Gas industry—Germany 3. BIOS FR 1421, Item 30

PB 94999

Porges, F. B.

Some engineering aspects of the Edeleanu process. May 1946. 45p drawings Mi $2.50 Ph $6.25

1. Edeleanu process—Germany 2. Mineral oils—Dewaxing—Germany 3. Edeleanau G.m.b.H., Berlin 4. BIOS FR 1772, Item 30

PB 95591

Rasquin, Franz, Cologne, Ger.

Photographs of a mechanical dryer for synthetic iron oxides. n.d. 7f Mi $1.25 Enl Pr $2.50

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No abstract available

1. Iron oxide, Synthetic—Germany 2. Dryers, Mechanical—Germany 3. Micro BIOS FD 1125/47, Frames 1-6

PB 95909

Roundy, Robert W.

C-K portable oxygen unit. Sep 1948. 11p drawings, graphs Mi $1.75 Ph $2.50

1. Oxygen generators, Portable 2. AAF TSEAA MR 660-122-H

PB 95907

Roundy, Robert W.

Test results and engineering data on air supply for type A-3 airborne, breathing oxygen generating plant. Oct 1948. 18p illus, tables, graphs Mi $1.75 Ph $2.50

1. Oxygen generators, Portable 2. Oxygen generators, Airborne 3. AAF TSEAA MR 660-87-1

PB 95829

Roundy, Robert W.

Type A-3 airborne, breathing oxygen, generating plant. Oct 1948. 18p Mi $1.75 Ph $2.50

1. Oxygen—Liquefaction 2. Oxygen—Preparation 3. Oxygen, Liquid—Fractionation 4. Oxygen generators, Portable 5. AAF TSEAA MR-660-87-F

PB 95302

U. S. Air Force and U. S. Navy Dept.

Cylinders: Nonshatterable CO_2 and oxygen. Air Force-Navy aeronautical bulletin. Sep 1948. 2p table Mi $1.25 Ph $1.25

1. Cylinders, Carbon dioxide 2. Cylinders, Oxygen 3. AN AB 358 4. AN-C-78 5. AN 6025

PB 96521

Wood, John A. and Mahoney, David I.

Physiological appraisal of the D-1 oxygen regulator. Nov 1948. 6p table Mi $1.25 Ph $1.25

1. D-1 (Oxygen regulator) 2. Pressure regulators, Oxygen 3. Valves, Oxygen 5. AAF TSEAA MR 696-107G

Miscellaneous Chemicals

PB 95992

Chemie arbeit. (Chemical work). v. 67, Nos. 2-12. 1944.

Chemische novitäten. (Recent chemical publications). v. 29, Nos. 1-3. 1940. v. 30, Nos. 1-3. 1941. v. 31, Nos. 1-3. 1942.

Chemisches zentralblatt. (Chemical journal). v. 114, Nos. 1-8. Jan-Mar 1943. 799f (Text in German) Mi $9.00 Enl Pr $103.75

1. Chemistry— Periodicals—Germany 2. Micro FIAT K 54, Frames 5826-6625

PB 95995

Chemisches zentralblatt. (Chemical journal). v. 114, Nos. 9-25. Sep-Dec 1943. v. 114, Index and patent register. Jan-Jun 1943. 759f (Text in German) Mi $9.00 Enl Pr $98.75

1. Chemistry—Periodicals— Germany 2. Micro FIAT K 57, Frames 8001-8760

PB 95987

Chemisches zentralblatt. (Chemical journal). Nos. 24-26. 1943. Nos. 1-9. 1943. 599f (Text in German) Mi $9.00 Enl Pr $77.50

1. Chemistry—Periodicals—Germany 2. Micro FIAT K 56, Frames 7401-8000

PB 94865

Clough, H.

Manufacture of diphenyl at I.G. Farbenindustrie, A. G., Leverkusen, May 1947. 9p photo, drawing Mi $1.25 Ph $1.25

1. Biphenyl—Preparation—Germany 2. I. G. Farbenindustrie A. G., Leverkusen, Ger. 3. BIOS FR 1787, Item 22

PB 94864

Clough, H.

Manufacture of formaldehyde at I.G. Farbenindustrie, A. G., Leverkusen. May 1947. 14p drawings, tables Mi $1.75 Ph $2.50

1. Formaldehyde—Production— Germany 2. I. G. Farbenindustrie A. G., Leverkusen, Ger. 3. BIOS FR 1788, Item 22

PB 94847

Deger (Dr.)

Essigsäureanreicherung mit Etrol—Benzol. (Enrichment of acetic acid by means of etrol and benzene mixture). Feb 1938. 22p tables (Text in German) Mi $2.00 Ph $3.75

1. Chemistry, Industrial— Germany 2. Acetic acid

PB 96645

Heppenstall, F. and others.

Manufacture of sulphuric acid. 1946. 11p (fold drawing), tables Mi $1.75 Ph $2.50

1. Sulfuric acid— Production—Germany 2. BIOS FR 1642, Item 22

PB 94012

Hieber (Herr)

Der gegenwärtige stand der chemie der metallcarbonyle. (Developments in metal carbonyl chemistry as of 1942). 1942. 5p tables (Text in German) Mi $1.25 Ph $1.25

A discussion of general valence and structural problems, and of metal carbonyls in the periodic system. In German. This is a reprint from "Die Chemie", Vol 55, 1942.

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PB 94948

Hutchinson, H. M.

Manufacture of polystyrene III. Mar 1947. 20p photo, drawings, diagr Mi $1.75 Ph $2.50

1. Styrene—Polymerization—Germany 2. Polystyrene III (Trade name) 3. I. G. Farbenindustrie A. G., Ludwigshafen, Ger. 4. BIOS FR 1764, Item 22

PB 95132

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.

Formic acid and formamide production. 1941-1942. 15f (Text in German) Mi $1.75 Enl Pr $3.75

See PB 95132s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Formic acid—Production— Germany 2. Formamide—Production—Germany 3. Micro BIOS FD 4033/47, Frames 1-14 4. Micro BIOS MOFP/Bag, 2171, Frames 1-14

PB 95245

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.

Manufacturing processes of catalysts for phthalic anhydride and for maleic anhydride. n.d. 3f (Text in French) Mi $1.25 Enl Pr $2.50

See PB 95245s for abstracts 1p. Mi $1.25 Ph $1.25

1. Phthalic anhydride—Catalysts—Germany 2. Maleic anhydride—Catalysts—Germany 3. Micro BIOS FD 1675/48, Frames 470-472

PB 95582

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.

Papers on the production of certain chemicals. 1940-1944. 165f (Text in German) Mi $6.25 Enl Pr $22.50

See PB 95582s for abstracts. 6p. Mi $1.25 Ph $1.25

1. Chemicals—Production—Germany 2. Micro BIOS FD 4081/47, Frames 1-164 3. Micro BIOS DOC 2351/2247/5, Frames 1-164

PB 95498

I. G. Farbenindustrie A. G., Oppau and Heydebreck, Ger.

Production of synthetic glycerine and related products. 1937-1944. 620f (Text in German) Mi $9.00 Enl Pr $80.00

See PB 95498s for abstracts. 2p. Mi $1.25 Ph $1.25

1. Glycerine, Synthetic—Production—Germany 2. I. G. Farbenindustrie A. G., Heydebreck, Ger. 3. Micro BIOS FD 4034/47, Frames 1-619 4. Micro MOFP/Bag 2171, Frames 1-619

PB 95235

I. G. Farbenindustrie A. G., Oppau, Ger.

Report on the silica gel works. 1945. 7f (Text in French) Mi $1.25 Enl Pr $2.50

See PB 95235s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Silica gel—Germany 2. Micro BIOS FD 1662/48, Frames 282-288

PB 95580

I. G. Farbenindustrie A. G., Schkopau, Ger.

Acetic acid, acetone, and aldehyde production. 1934-1944. 67f (Text in German) Mi $3.00 Enl Pr $10.00

See PB 95580s for abstracts. 2p. Mi $1.25 Ph $1.25

1. Acetic acid—Production—Germany 2. Acetone—Production—Germany 3. Aldehydes—Production—Germany 4. Micro BIOS FD 2060/47, Frames 1-66

PB 95149

I. G. Farbenindustrie A. G., Schkopau, Ger.

Ethylene production by acetylene hydrogenation. 1939-1944. 66f (Text in German) Mi $3.00 Enl Pr $10.00

See PB 95149s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Ethylene— Production—Germany 2. Acetylene—Hydrogenation—Germany 3. Micro BIOS FD 2153/47, Frames 1-65

PB 95579

I. G. Farbenindustrie A. G., Schkopau, Ger.

Monthly reports relating to salt-processing and hydrochloric acid plant. 1942-1944. 320f (Text in German) Mi $9.00 Enl Pr $41.25

See PB 95579s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Hydrochloric acid—Production—Germany 2. Rock salt—Processing—Germany 3. Micro BIOS FD 2062/47, Frames 1-319

PB 95581

I. G. Farbenindustrie A. G., Schkopau, Ger.

The production of pure hydrocarbons by continuous distillation and the alkylation of benzol into diethyl benzol. 1941-1944. 72f (Text in German) Mi $3.50 Enl Pr $11.25

See PB 95581s for abstracts. 2p. Mi $1.25 Ph $1.25

1. Hydrocarbons—Production—Germany 2. Benzene—Distillation—Germany 3. Benzene—Alkylation—Germany 4. Benzene, Diethyl—Germany 5. Micro BIOS FD 2170/47, Frames 1-71

PB 95577

I. G. Farbenindustrie A. G., Schkopau, Ger.

Production of spirits of acetaldehyde, benzene, ethyl benzene, etc. 1939-1943. 98f (Text in German) Mi $4.25 Enl Pr $13.75

See PB 95577s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Acetaldehyde—Production— Germany 2. Benzene—Production—Germany 3. Benzene, Ethyl—Production—Germany 4. Micro BIOS FD 2179/47, Frames 1-97

PB 88773

Johnstone, H. F. and others.

Studies on methylated naphthalene derivatives. Apr 1946. 71p illus, diagrs, tables Mi $3.50 Ph $10.00

1. Napthalenes, Methyl—Derivatives 2. ICC 183

PB 95486

Koepp, Rudolph & Co., Oestrich, Ger.

Preparation of formic acid, oxalic acid and nickel formate. n.d. 16f (Text in German) Mi $1.75 Enl Pr $3.75

See PB 95486s for abstracts. 1p. Mi $1.25 PH $1.25

1. Formic acid—Preparation—Germany 2. Oxalic acid— Preparation— Germany 3. Nickel formate—Germany 4. Micro BIOS FD 3295/46, Frames 1-15 5. Micro BIOS DOC 2541/1619, Frames 1-15

PB 95586

Lurgi Gesellschaft für Waermetechnik m.b.H., Frankfurt am Main, Ger.

Production and use of activated carbon and carbon filled filters. 1946. 31f (Text in German) Mi $2.00 Enl Pr $5.00

See PB 95586s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Carbon, Activated—Production—Germany 2. Carbon, Activated—Uses— Germany 3. Filters, Carbon— Germany 4. Micro BIOS FD 206/47, Frames 1-30 5. Micro BIOS DOC 2552/1739, Frames 1-30

PB 96517

Luty, V.

Chemie und technik der metall—holz—verleimung. (The chemistry and technology of metal to wood cementing). Nov 1942. 9p illus, tables Mi $1.25 Ph $1.25

Since the appearance of modern synthetic resin glues, whose earliest member, the Tegofilm, even assumed quite an unusual form as dry film in 1929, the cementing of plywood was treated as a jealously guarded secret by the ply manufacturers and their works managers. Still more secret were the metal-wood combinations which were put out by some firms under high sounding names. Technical strength data were omited. The arrival of synthetic resin adhesives, especially the Tegofilm, destroyed the mystery about glue, especially as the ready-made adhesive could be obtained by any user with complete directions for their application and hints as to their proper employment. The metal-wood cementing, especially of aluminum and steel, was from the beginning scientifically and practically investigated by Th. Goldschmidt, Essen, originators of the Tegofilm, as witness papers in the technical press such as "Metal-wood cementing" in Die Holzindustrie, Heidelberg, Parts 6 and 7/1931 and

"How metal-faced plywood is made on the Continent" in The Timber Trades Journal. Already in 1931, the Vereinigten Aluminiumwerke, Lautawerk, carried out elaborate investigations into the influence of metallic surfaces on the cementing.

Micro GDC 16/429(f)T, translation

PB 96005

Morino, Yonezo and Iwasaki, Machio

The estimation of the hindering potential barrier of hexachloroethane by electron diffraction investigation. Nov 1948. 4p graph Mi $1.25 Ph $1.25

1. Ethane, Hexachloro 2. Electron—Deflection

PB 96149

Mueffling, Ludwig von.

Kinetic investigation on the reactions of n-and iso paraffins during oxidation. Sep 1941. 11p diagrs, table Mi $1.75 Ph $2.50

Legends in German

1. Gt. Brit. Ministry of Supply 2. Paraffins—Oxidation—Germany 3. Paraffin-n—Oxidation—Reaction—Germany 4. Paraffin-iso—Oxidation—Reaction—Germany 5. RTP/TIBT, translation 6. Micro GDC 10/10,300T, translation

PB 94841

Nikuradse, A. and others.

Dimerisation von Ölsäuremethylester in der Glimmentladung. (Dimerization of oleic acid methyl esters in a glow discharge). n.d. 18p graphs (Text in German) Mi $1.75 Ph $2.50

1. Oleic acid methyl esters—Condensation—Germany 2. Berlin. Technische Hochschule. Laboratorium für Elektronen und Ionenlehre

PB 94842

Nikuradse, A. and others.

Über Dimerisation in der elektrischen Entladung. (Dimerization in the discharge of hydrocarbons). n.d. 9p graphs (Text in German) Mi $1.25 Ph $1.25

1. Chemical research—Germany 2. Hydrocarbons—Condensation 3. Berlin. Technische Hochschule. Laboratorium für Elektronen und Ionenlehre

PB 95644

Scott, W. D. and others.

Benzoic acid manufacture in Germany. Aug 1946. 49p tables, graphs Mi $2.50 Ph $6.25

1. Benzoic acid—Production—Germany 2. Benzaldehyde—Production— Germany 3. BIOS FR 1786, Item 22

PB 95485

Wacker, Alexander G.m.b.H., Burghausen, Ger.

Distillation of acetic acid from acetic cellulose plant. Production costs for hydrated lime. 1943-1946. (?). 6f (Text in German and English) Mi $1.25 Enl Pr $2.50

See also PB 79428 (BIOS FR 1050); and PB 79578 (BIOS FR 1051)

See PB 95485s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Acetic acid—Distillation—Germany 2. Lime, Hydrated—Germany 3. Micro BIOS FD 4358/47, Frames 1-4 4. Micro BIOS DOC 1919/146/2(518)/111,215, Frames 1-4

PB 95891

Warshowsky, Benj. and Schantz, E. J.

The determination of phenol and cresol in complex biochemical mixtures. Application of the counter-current distribution method. n.d. 22p tables, graphs Mi $2.00 Ph $3.75

Phenol and cresol can be quantitatively determined in complex biochemical samples. The phenolic compounds are removed from the interfering substances by distillation at pH 8.0-8.5, and the sum of phenol and cresol are determined by the sulfanilic acid method. Phenol is then separated from cresol by submitting an aliquot of the distillate to a 24-plate counter-current distribution. From the amount of phenol found in a selected series of tubes, the concentration in the original sample can be calculated. Cresol is determined by difference by subtracting value for phenol from the total phenolic content of the sample.

PB 95927

Zeitschrift für physikalische chemie. (Journal of physical chemistry). Part A. v. 189. 1941. v. 190. 1942. (incomplete). v. 191. 1942. v. 192. 1943. (incomplete) v. 193. 1943. 860f (Text in German) Mi $9.00 Enl Pr $112.50

1. Chemistry, Physical—Periodicals—Germany 2. Micro FIAT K 87, Frames 8901-9760

PB 95926

Zeitschrift für physikalische chemie (Journal of physical chemistry). Part A. v. 190, nos. 3-6. 1942. Part B. v. 45, nos. 1-6. 1939. v. 46, nos. 1-6. 1940. v. 49, nos. 1-6. 1941. v. 50, nos. 1-2. 1941. 770f (Text in German) Mi $9.00 Enl Pr $101.25

1. Chemistry, Physical—Periodicals—Germany 2. Micro FIAT K 88, Frames 9761-9999 and 1-530

ELECTRICAL MACHINERY, EQUIPMENT AND SUPPLIES

Communication Equipment

PB 95429

Brunswig, J. and others.

Advantages and disadvantages of frequency and phase modulation in the light of the special requirements demanded by aviation, as well as its application to wireless navigation. 1942. 272p graphs, charts Available from British Informa-

tion Services, 30 Rockefeller Plaza, New York 20, N. Y. $6.50

1. Kloepfer, W. 2. Vieweger, M. 3. Frequency modulation 4. Modulation, Phase 5. Navigation, Aerial 6. BIOS MR 83

PB 88961s

Dorgelo, E. G.

Transmitting tube targets in Germany. 1947. 54p diagrs, drawings, tables (fold table) Mi $2.75 Ph $7.50

Legends in German

Supplement 1 of PB 88961

Original text in German

1. Netherlands Military Mission. Technical Research 2. BIOS M 102

PB 95513

Gt. Brit. General Post Office.

Radio and radar for merchant ships, a performance specification for the climatic and durability testing of marine radio and radar equipment. 1948. 8p Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.10

1. Radio, Marine—Equipment—Gt. Brit. 2. Radar, Marine—Equipment—Gt. Brit.

PB 96670

Harrison, J. S. and others.

Production and use of getter materials in German radio valves, thermionic devices generally, and electric lamps. 1944. 36p tables Mi $2.25 Ph $5.00

1. Getters—Germany 2. Vacuum tubes—Getters—Germany 3. Lamps, Electric—Germany 4. Devices, Thermionic—Germany 5. BIOS FR 1834, Item 7

PB 96634

Hay, D. R.

The design of practical high power slotted wave guide arrays. Dec 1948. 29p photos, graphs Mi $2.00 Ph $3.75

Design information for the resonant dimensions of 3/8-inch shunt dumbbell slots is given. It is expected that such 3/8-inch slots are sufficient for safe operation of a five-megawatt, S-band wave guide array, thirteen feet in length. Climatic tests indicate the necessity of water-repellent wave guide slot coverings, and borad-banding in an array. Measurements on a thirteen-foot, non-resonant, S-band wave guide array of forty-five 3/8-inch shunt, dumbbell slots, covered with vinylite and glyptal, show that it should operate satisfactorily under climatic extremes. The array described here has a band width greater than eight percent. A suitable adhesive, 3M-EC826, has been found for bonding vinylite sheet to clean brass wave guide. NRCC 1849.

—62231

PB 96355

Lange, C. de and Kramer, J.

Dutch report on manufacture of radio component parts in the American zone of Germany. U.S. Zone. n.d. 31p photos Mi $2.25 Ph $5.00

Parts of this report will not reproduce well

1. Radio—Components—Germany 2. Netherlands Military Mission. Technical Research 3. BIOS M 110

PB 95806

MacKenzie, K. R.

Wide range frequency modulation. Oct 1947. 2p Limited supply Mimeo: $.05 Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn., Mimeo: $.05

1. Atomic power—Research 2. Radio, Frequency modulation 3. AECD 1817

PB 96554

Piggott, W. R.

A method of determining the polar diagrams of long-wire and horizontal rhombic aerials. Oct 1948. 39p diagrs, drawings, charts Mi $2.25 Ph $5.00

1. Antennas, Rhombic—Gt. Brit. 2. Radio—Research—Gt. Brit. 3. DSIR Rad R SR 16

PB 85279

U. S. Army Air Forces.

Set: Measurement, mechanical, equipment, airborne communications. Feb 1947. 4p tables Mi $1.25 Ph $1.25

1. Communications, Airborne—Equipment 2. Instruments, Measuring—Mechanical 3. AAF TO 00-30-758

PB 85278

U. S. Army Air Forces.

Set: Stockroom, central, equipment, airborne communications. Feb 1947. 2p table Mi $1.25 Ph $1.25

1. Communications, Airborne—Equipment—Storage 2. AAF TO 00-30-757

PB 92660

U. S. Bureau of Ships.

Maintenance instructions for the L039 portable transmitter; and "Grundlagen der Kathodenebrahlröhren—Lehrbuch der Luftwaffe." (Principles of cathode ray tubes—Air Force manual). 156p Jan 1941. 93f (Text in German) Mi $4.25 Enl Pr $13.75

1. Transmitters, Portable 2. L039 (Portable transmitter) 3. Tubes, Cathode ray—Germany 4. Germany. Luftwaffe 5. Micro NAVSHIPS E 633-46, Frames unnumbered 6. Micro NAVSHIPS E 143-46, Frames unnumbered

PB 95593

U. S. Bureau of Ships.
Model DZ-2; Aircraft radio direction finder equipment; 24 volt direct-current operation. May 1942. 136p illus, tables, graphs, drawings Mi $5.50 Ph $17.50
1. Radio, Airborne—Equipment 2. Radio direction finders—Equipment

PB 84931

U. S. Signal Corps.
Miscellaneous reports on radio and television research. 1943-1944. 1565f graphs Mi $9.00 Enl Pr $203.75
Reports from the Weltpost Institut, Heidelberg, the Drahtlostelegraphische und Luftelektrische Versuchsstation, Gräfelking on radio and television research including FM and aircraft radio, and technical manuals covering the FuG 16Z aircraft radio. 530,800,100 and 200 watt ground radio transmitters and portable and all-wave receivers. Micro SIG 1549, Frames not numbered correctly

PB 96650

U. S. War Dept. and others.
Handbook of maintenance instructions for navy model LM-13 crystal calibrated frequency indicating equipment. Aug 1943. 56p photos, diagrs, drawings (fold drawing), tables Mi $2.75 Ph $7.50
1. Gt. Brit. Air Council of the United Kingdom 2. Radio frequencies—Calibration 3. Radio equipment 4. NAVAER 08 5Q 38

PB 95899

Westerveld, Ir. F.
Automatic telephone switching, carrier telephony and teleprinters at Siemens & Halske, Berlin. Feb 1947. 26p graph Mi $2.00 Ph $3.75
1. Telephones, Automatic—Germany 2. Telephones, Carrier—Germany 3. Teletypewriters—Germany 4. Siemens & Halske, Berlin 5. BIOS Trip 3025

PB 95984

Zeitschrift für fernmeldetechnik, werk- und gerätebau.
(Journal for electric communication, plant- and equipment construction).
v. 20, Nos. 1-12. 1939.
v. 21, Nos. 1-12. 1940
v. 22, Nos. 1-12. 1941.
Funktechnische monatshefte. (Radio engineering monthly).
Nos. 1-4. Jan-Apr 1941.
360f (Text in German) Mi $9.00 Enl Pr $46.25
1. Communications, Electrical—Periodicals—Germany 2. Engineering, Radio—Periodicals—Germany 3. Micro FIAT E 128, Frames 9486-9846

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Electronics

PB 96102

Jacobs, W.
Über die Dohlersche gleichrichtung. (The Doehler rectifying effect). Nov 1940. 25p graphs, drawing, table Mi $2.00 Ph $3.75
Legends in German
This work is an extension of the investigations made by Doehler and Hecker on a new rectifying effect at cm—wavelengths (DVL report FB No. 1086). In the following a theory will be developed regarding the magnitude of the rectifying effect to be expected at cm—wavelengths and the results of investigations will show the form in which the rectification occurs at these high frequencies. From this the most favorable conditions to provide a maximum rectifying effect for cm waves may be obtained. Micro GDC 10/1677T translation.

PB 96413

Parsons, J. Howard
Electronic classifying, cataloging, and counting systems. n.d. 15p photo, drawings (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)
The determination of the distribution of a series of physical events according to magnitude is important in the study of the associated physical laws. Previous methods of determining this magnitude distribution were slow and cumbersome. Three new electronic systems which operate on events at a very high rate have been developed by the author at Oak Ridge National Laboratory and these are described. The analysers can be used to determine the magnitude distribution of any series of physical events if the characteristic under observation can be translated into a proportional voltage pulse. Two applications are discussed and the advantages of the analysers over other systems are shown. AECD 1827.

PB 95912

U. S. Air Force and U. S. Navy Dept.
Inverter—class A 750 volt ampere single phase. Dec 1948. 1p Mi $1.25 Ph $1.25
1. Voltage—Measurements 2. Inverters—Electronic 3. AN 3514

PB 95936

U. S. Air Force and U. S. Navy Dept.
Radar; X-band, airborne—standard beacon provisions. Nov 1948. 3p Mi $1.25 Ph $1.25
1. Radar, Airborne—Equipment 2. AN-R-30

PB 84916

U. S. Signal Corps.

Miscellaneous electronic research reports and drawings. 1936-1944. 1684f diagrs Mi $9.00 Enl Pr $218.75

This reel will not reproduce well

I. Electronics—Research—Germany 2. Micro SIG IS 34, Frames not numbered correctly

PB 84923

U. S. Signal Corps.

Miscellaneous material dealing with infrared rays, microwave research, etc. 1935-1945. 1482f charts, graphs Mi $9.00 Enl Pr $192.50

This microfilm reel contains the following material: (1) "Significance of infrared rays for military purposes." H. Gaertner, Vols I & II 1942-1943; (2) "Infrared methods." W. Lautsch et al. 1938; and (3) Reports covering iconoscope development, lead sulfide photoelectric cells, microwave research, etc. Some sections of this reel will not reproduce well. Micro SIG IS 41, Frames not numbered correctly

PB 84892

U. S. Signal Corps.

Miscellaneous reports covering electronic research. 1938-1945. 1280f drawings, graphs Mi $9.00 Enl Pr $166.25

This reel consists of reports from the Flugfunk Forschungsinstitut, Oberpfaffenhofen, Reichstelle für Hochfrequenzforschung, Hamburg and Reichenau. Institut für angewandte Physik, Hamburg, and others, covering magnetrons, cyclotrons, bolometers, cavity resonators, wave propagation, coaxial cables, etc. Micro SIG IS9, Frames not numbered correctly.

PB 84886

U. S. Signal Corps.

Miscellaneous reports on airborne radar and radio equipment. 1941-1944. 560f tables Mi $9.00 Enl Pr $72.50

This microfilm reel consists of reports and drawings covering the "Lichtenstein", "Berlin A", and "Kurmark" airborne radar, technical manuals on the FuNG 101 altimeter and the FuG 217 airborne radio, and reports on airborne radar equipment manufactured by the Telefunken ges. für Drahtlose Telegraphie m.b.h. Berlin. Some frames will not reproduce well. Micro SIG IS3, Frames not numbered correctly

PB 84922

U. S. Signal Corps.

Miscellaneous reports on electronic research. 1940-1945. 1239f tables, diagrs Mi $9.00 Enl Pr $160.00

This microfilm reel contains the following material: (1) AEG & Telefunken specifications for triodes & pentodes; (2) a Telefunken report on ultrahigh frequency research; and (3) reports on magnetrons, cathode ray screens and amplifier tubes, multi electrode and velocity modulated vacuum tubes, ultrasonic generators, wave propagation, infrared receivers, and tests of captured airborne radar equipment. Micro SIG IS 40, Frames not numbered correctly.

PB 84891

U. S. Signal Corps.

Miscellaneous reports on electronic research, tests on radar equipment and a manual on a radio receiver. 1940-1945. 253f diagrs, drawings, tables Mi $9.00 Enl Pr $33.75

Reports on tests of the "Korfu" and "Rotterdam" radar equipment; a technical manual on the FuG 351 radio receiver, and miscellaneous electronics research reports. Micro SIG IS 8, Frames not numbered correctly.

PB 84890

U. S. Signal Corps.

Miscellaneous research reports on radar equipment. 1939-1945. 1288f Mi $9.00 Enl Pr $167.50

This microfilm reel contains research reports covering direction finding methods and equipment, aiming devices, "Rotterdam" radar and foil-jamming radar, and testing devices for airborne radar equipment. Some frames will not reproduce well. Micro SIG IS7, Frames not numbered correctly.

PB 84899

U. S. Signal Corps.

Reports covering ionosphere research, problems in Lufthansa radio operations, atmospheric disturbances and development and tests of aircraft antennas. 1943-1945. 1028f tables, graphs (Text in German) Mi $9.00 Enl Pr $133.75

Reports covering ionosphere research, problems in Lufthansa radio operations, atmospheric disturbances, and development and tests of aircraft antennas including a report from the Aerodynamische Versuchsanstalt, Göttingen on "Icing of aircraft antennas and preventive measures". Some frames will not reproduce well. Micro SIG IS16, Frames not numbered

PB 84926

U. S. Signal Corps.

Reports covering radio receivers, band filters, voltmeters antennas, transformers, etc. Miscellaneous data sheets, drawings, and wiring diagrams are included. 1942-1945. 1144f drawings, diagrs (Text in German) Mi $9.00 Enl Pr $148.75

This report probably will not reproduce well

I. Radio equipment—Materials—Germany 2. Micro SIG IS 44, Frames not numbered correctly

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PB 84910

U. S. Signal Corps.

Reports on airborne transceivers, antiaircraft directors, airborne radar equipment, etc. 1943-1945. 778f tables, charts (Text in German) Mi $9.00 Enl Pr $101.25

This microfilm reel contains the following material: a) Operating instructions for the FuG 101 and "Liliput R" airborne transceivers; b) a reprint from "Zeitschrift des Vereines Deutscher Ingenieure" Jul 11, 1942 on antiaircraft directors; c) reports of tests of British and American airborne radar equipment; and d) an evaluation report covering U. S., British, Russian, Polish and Czechoslovakian Crystals. Micro SIG IS 28, Frames not numbered correctly

PB 84895

U. S. Signal Corps.

Reports on the development and tests of airborne radar. 1943-1945. 1013f charts (Text in German) Mi $9.00 Enl Pr $132.50

This report will probably not reproduce well

Reports on the development & tests of airborne radar, including the "Erika" and "Boomerang" systems. Micro SIG IS 12, Frames not numbered correctly

PB 84889

U. S. Signal Corps.

Research and evaluation reports covering German airborne radar equipment. 1944-1945. 489f tables, diagrs (Text in German) Mi $9.00 Enl Pr $62.50

This report will probably not reproduce well

1. Radar, Airborne, Equipment—Germany 2. Micro SIG IS 6, Frames not numbered correctly

PB 84913

U. S. Signal Corps.

Research reports covering crystal oscillators, germanium rectifiers, dielectric materials, infrared phosphors, etc. 1939-1945. 1490f drawings, diagrs (Text in German) Mi $9.00 Enl Pr $193.75

Sections of this reel will not reproduce well

1. Oscillators, Crystal—Germany 2. Rectifiers, Germanium—Germany 3. Micro SIG IS 31, Frames not numbered correctly

PB 84901

U. S. Signal Corps.

Research reports covering directional, rotatable beam and Yagi antennas. 1937-1945. 1500f diagrs, charts (Text in German) Mi $9.00 Enl Pr $195.00

This reel consists of research reports covering directional, rotatable beam, and Yagi antennas, and wave propagation, including "Principles of wide band antennas, by O. Zinke (266 p.) Some sections of the reel will not reproduce well. Micro SIG IS 18, Frames not numbered correctly

PB 84894

U. S. Signal Corps.

Research reports on aircraft television, iconoscopes and radar equipment. 1938-1945. 905f drawings (Text in German) Mi $9.00 Ph $117.50

This report will not reproduce well

This reel consists of research reports on aircraft television and iconoscopes, as well as reports, data, and drawings covering "Mannheim", "Rotterdam", and "Nürnberg" airborne radar equipment. Micro SIG IS 11, Frames not numbered correctly

PB 84900

U. S. Signal Corps.

Research reports on radio controlled aircraft, signal beam apparatus, directional antennas, airborne radar equipment, etc. 1935-1945. 1576f tables (Text in German) Mi $9.00 Enl Pr $205.00

This report will probably not reproduce well

This microfilm reel contains the following material: 1) Research reports from the Flugfunk Forschungsinstitut, Oberpfaffenhofen and the Drahtlostelegraphische und Luftelektrische Versuchstation, Gräfelfing, on radio controlled aircraft, signal beam apparatus, directional antennas, and "Neptun" airborne radar equipment: (2) a report on remote control of the cruiser "Graf Spee"; and (3) "Selected problems on the theory and technology of antennas" (243 p.) 1943, from the Zentrale für Wissenschaftliches Berichtswesen der Luftfahrforschung, Berlin. Micro SIG IS 17.

PB 84897

U. S. Signal Corps.

Research reports on wave propagation. 1940-1945. 1540f drawings (Text in German) Mi $9.00 Enl Pr $200.00

This report will not reproduce well

This microfilm reel contains research reports on wave propagation, etc. from the Institut für Theoretische Physik, Universität Köln, the Flugfunk Forschungsinstitut, Gräfelfing, and others, a short wave Atlas for 1943, and a reprint of "Propagation of electromagnetic waves with particular reference to the ionosphere" by W. Pfister (PB 89609 Vol 9 p 310 BSIR). Micro SIG IS 14.

PB 84911

U. S. Signal Corps.

Technical data covering radar equipment, infrared rays and miscellaneous electronics reports. 1942-1945. 1289f tables, charts (Text in German) Mi $9.00 Enl Pr $167.50

This microfilm reel contains the following material: a) Technical data and reports covering "Meddo" radar equipment, "Egon" and "Y" radar controls, and infrared receivers; b) "Significance of infrared rays for military purposes" by H. Gaertner; c) progress reports from the Reichsstelle für Hochfrequenzforschung, Ernst Lecher Institute,

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Berlin, and miscellaneous electronics reports. Some frames will not reproduce well. Micro SIG IS 29

PB 84907

U. S. Signal Corps.

Technical data, reports and wiring diagrams covering radio direction finding methods and equipment. 1935-1944. 1430f diagrs (Text in German) Mi $9.00 Enl Pr $185.00

This reel contains technical data, reports and wiring diagrams from the Drahtlostelegraphische und Luftelektrische Versuchsstation, Gräfelfing, and the Flugforschungsinstitut, Oberpfaffenhofen, covering radio direction finding methods and equipment. Micro SIG IS 24.

PB 84903

U. S. Signal Corps.

Technical data, specifications and research reports on vacuum tubes. 1943-1944. 1468f tables, drawings (Text in German) Mi $9.00 Enl Pr $190.00

Sections of this report will not reproduce well

This reel contains the following material: a) Technical data and specifications for Telefunken, Osram, and AEG vacuum tubes; b) reports on vacuum tube research and development; and c) a handbook of vacuum tubes used by the armed forces. Micro SIG IS 20.

PB 84887

U. S. Signal Corps.

Technical manuals dealing with aircraft radio and radar equipment. 1942-1945. 1589f diagrs, tables Mi $9.00 Enl Pr $206.25

This microfilm reel contains technical manuals for the Fu G 102A, 212, 216, 217, 218 and 220 aircraft radio equipment and for the "Dete II" and "Wassermann" airborne radar equipment, as well as reports on the "Neptun" airborne radar and the "Nürnberg" and "Gleichenberg" procedures. Micro SIG IS 4.

PB 95594

Valley, George E. and Wallman, Henry

Vacuum tube amplifiers. 1948. 754p graphs, tables Available from McGraw-Hill Book Company, Inc. 330 West 42nd Street, New York 18, N. Y. $10.00

1. Amplifiers 2. Amplifiers, High frequency 3. Circuits, Amplifier 4. MIT Rad. Lab. Ser. v. 18

Generators, Motors, Transmission, Distribution and Allied Equipment

PB 96535

Billig, E.

German research on semi-conductors, metal rectifiers, detectors and photocells. n.d. 55p diagrs Mi $2.75 Ph $7.50

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1. Conductors, Semi—Germany 2. Rectifiers, Metal—Germany 3. Detectors, Crystal—Germany 4. Photoelectric cells—Germany 5. BIOS FR 1751, Item 7, 22

PB 95394

Elektrizitätswirtschaft. (Electric power economy). v. 39, Nos. 1-36. 1940. Supp. Nos. 1-6. 1940. v. 40, Nos. 1-35. 1941. Supp. Nos. 1-4. 1941. 743f (Text in German) Mi $9.00 Enl Pr $96.25

1. Electric power industry—Periodicals—Germany 2. Micro FIAT E 116, Frames 683-1428

PB 95977

Elektrizitätswirtschaft. (Electric power economy). v. 41, Nos. 1-24. Jan-Dec 1942. v. 42, Nos. 1-13. Jan-Oct 1943. 740f (Text in German) Mi $9.00 Enl Pr $95.00

1. Electric power industry—Periodicals—Germany 2. Micro FIAT E 117, Frames 1429-2169

PB 96491

Hanseatische Apparatebau G.m.b.H., Kiel, Ger.

Electro-dynamic regulators. 1940. 12f (Text in German and English) Mi $1.75 Enl Pr $3.75

See PB 95491s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Regulators, Electro-dynamic—Germany 2. Micro BIOS FD 4388/47, Frames 1-11 3. Micro BIOS DOC 1747A/2777, Frames 1-11

PB 96116

Hüttmann, E.

Entwicklung von ultrakurzwellen generatoren mit grossem abstimmbereich. (The development of ultra short wave generators with a wide tuning range). n.d. 6p illus, drawings Mi $1.25 Ph $1.25

Legends in German

The oscillation of the broad band Rehbock set is described, with which it is possible to cover wave lengths between 50 and 80 cm or 84 and 350 cm with single knob tuning. ZWB821, translation.

PB 95408

Lamm, Uno.

Transductor, D.C. pre-saturated reactor, with special reference to transductor control of rectifiers. 1948. 225p diagrs, graphs Mi $8.00 Ph $28.75

1. Transducers, Electromechanical—Sweden 2. Reactors—Design—Sweden 3. Rectifiers—Control—Sweden 5. Acta polytechnica no. 17, 1948

PB 95911

U. S. Air Force and U. S. Navy Dept.

Inverter-class A 2500 volt ampere single phase. Nov 1948. 1p drawing Mi $1.25 Ph $1.25

1. Voltage controllers 2. Voltage—Regulation 3. AN 3516

PB 86293r

U. S. Air Force and U. S. Navy Dept.
Jack-tip voltmeter test. Air Force-Navy aeronautical standard. Sep 1948. 1p Mi $1.25 Ph $1.25

PB 26346r2

U. S. Air Force and U. S. Navy Dept.
Relay: 50 AMP 2PDT intermittent. Air Force-Navy aeronautical standard. Oct 1948. 1p drawings Mi $1.25 Ph $1.25
Revision 2 of PB 26346
I. AN 3354-2

PB 26353r3

U. S. Air Force and U. S. Navy Dept.
Relay: 40 AMP SPST. Air Force-Navy aeronautical standard. Sep 1948. 1p drawings, table Mi $1.25 Ph $1.25
I. AN 3380-3

PB 26354r3

U. S. Air Force and U. S. Navy Dept.
Relay: 400 AMP SPST intermittent. Air Force-Navy aeronautical standard. Sep 1948. 1p drawings, table Mi $1.25 Ph $1.25
I. AN 3381-3

PB 26318r3

U. S. Air Force and U. S. Navy Dept.
Switch: Voltmeter selector. Air Force-Navy aeronautical standard. Sep 1948. 1p drawings Mi $1.25 Ph $1.25
I. AN 3211-3

PB 26229r3

U. S. Air Force and U. S. Navy Dept.
Terminal block: Five stud. Air Force-Navy aeronautical standard. Nov 1948. 2p drawings Mi $1.25 Ph $1.25
Revision 3 of PB 26229
I. AN 3086-3

Miscellaneous

PB 95254

Faust, Charles L. and Graves, E. E.
Industrial electropolishing. Jun 1948. 16p photos, illus, tables Mi $1.75 Ph $2.50
I. Battelle Memorial Institute, Columbus, Ohio 2. Electropolishing

PB 95826

Fee, John C.
Electrical and mechanical appliances., Book V. Aug 1946. 138p tables Mi $5.50 Ph $17.50
I. Electrical equipment—Japan 2. U. S. 5250th Technical Intelligence Co., Tokyo

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PB 95878

Moberg, Harald A: son, and others.
The use of electricity in Swedish agriculture. (A report on an agricultural electric survey). 1947. 90p tables Mi $3.75 Ph $11.25
I. Agriculture—Sweden 2. Electrical equipment—Sweden 3. Swedish Institute of Argicultural Engineering. Ultuna, Sweden

PB 95952

Smith, T. and Brown, E. D.
The natural lighting of houses and flats with graded daylight factor tables. Apr 1944. 21p tables, graphs Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.20
I. Lighting, Natural—Housing—Gt. Brit. 2. Windows—Gt. Brit. 3. DSIR NPL

PB 26290r

U. S. Air Force and U. S. Navy Dept.
Actuator: Limit switch class C. Air Force-Navy aeronautical standard. Oct 1948. 1p drawings, table Mi $1.25 Ph $1.25
Revision 1 of PB 26290
I. AN 3168-1

PB 95896

U. S. Air Force and U. S. Navy Dept.
Light assembly—control panel, plastic lighting plate. Nov 1948. 1p drawing Mi $1.25 Ph $1.25
I. Airplanes—Equipment 2. Control instruments 3. Title: Light assembly—control panel, plastic lighting plate 4. AN 3502

PB 21528r

U. S. Air Force and U. S. Navy Dept.
Nipple: Electrical terminal. Air Force-Navy aeronautical specification. Oct 1948. 8p tables Mi $1.25 Ph $1.25
Revision 1 of PB 21528
I. AN-N-9a

PB 94703

U. S. Air Force and U. S. Navy Dept.
Relay: 100 AMP TPST AC, SPST DC, normally open. Air Force-Navy aeronautical standard. Aug 1948. 1p drawings Mi $1.25 Ph $1.25
I. Relays, Electric 2. AN 3343

PB 93323r

U. S. Air Force and U. S. Navy Dept.
Specification; switch assembly—toggle, momentary position, two unit. Dec 1948. 1p drawing Mi $1.25 Ph $1.25
Amendment to PB 93323
I. AN 3235, revised

PB 26173r5

U. S. Air Force and U. S. Navy Dept.
Switch: Toggle, single pole, one hole mounting. Air Force-Navy aeronautical standard. Nov 1948. 1p drawings, table Mi $1.25 Ph $1.25
Revision 5 of PB 26173
I. AN 3021-5

PB 68086r

U. S. Air Force and U. S. Navy Dept.
Terminal block: Found stud. Air Force-Navy aeronautical standard. Oct 1948. 1p drawings Mi $1.25 Ph $1.25
Revision 1 of PB 68086
I. AN 3082-1

PB 95827

U. S. 5250th Technical Intelligence Co., Tokyo.
Electric machines, Book III. Aug 1946. 10 lp tables Mi $4.50 Ph $13.75
I. Electrical equipment—Japan

PB 84925

U. S. Signal Corps.
Miscellaneous reports on electronic research, radio and radar equipment. 1944-1945. 1653f drawings, graphs Mi $9.00 Enl Pr $215.00
Reports on electronics research from the Institute for Applied Physics, Hansischen Universität. Reichsstelle für Hochfrequenz Forschung, Landsberg, Institute for theoretrial Physics. München; technical manuals covering the "Heinrich I" radio transmitter, and ground observation equipment; design data for radar equipment; reports on the solution of partial differential equations in electronics; reports on 2-dimensional Fourier synthesis by means of frequency modulation and on conformal transformations, and reports and drawings for various types of antennas for home radio, Etc.
Micro SIG IS 43,

PB 84924

U. S. Signal Corps.
Miscellaneous reports on radio and radar research. 1941-1944. 1550f diagrs, tables, graphs Mi $9.00 Enl Pr $201.25
Reports on radio research from the Elektrophysikalisches Laboratorium, Technsche Hochschule, München including reports on tests of radar installed along the East Front and the French Coast; operating instructions for the DAG-41 alarm system; German patent applications covering vacuum tubes; research reports from the Aircraft Radio Research Institute Oberpfaffenhofen, and the Institute for Theoretrial Physics, Cologne University, and an Article on stratosphere flight from the German Academy for Aeronautices
Micro SIG IS 42

—62231

FOOD AND KINDRED PRODUCTS

PB 85171s2

Dassow, John A.
Utilization of Alaska salmon cannery waste. Part II. Dec 1948. 75p photos, tables Mimeo: $.50
Supplement 2 to PB 85171
I. OTS IRDD-2

PB 96020

Deutsche zuckerindustrie. (German sugar industry). v. 65, Nos. 1-52. 1940. v. 66, Nos. 1-36. 1941. 732f (Text in German) Mi $9.00 Enl Pr $95.00
I. Sugar—Periodicals—Germany 2. Micro FIAT E 111, Frames 7189-7921

PB 95842

Deutsche zuckerindustrie. (German sugar industry). v. 66, no. 36. (p. 608-617)-no. 52. 1941. v. 67, nos. 1-52. 1942. v. 68, nos. 1-13. 1943. v. 69, nos. 1-9. 1943.
Zuckerindustrie. (Sugar industry). v. 2, nos. 1-7. 1944 707f (Text in German) Mi $9.00 Enl Pr $91.25
I. Sugar— Periodicals—German) 2. Micro FIAT E 112, Frames 7922-8629

PB 95324

Mellinger, George W. and Frantz, John A.
Survival ration, arctic, carbohydrate. Sep 1948. 25p graphs, tables Mi $2.00 Ph $3.75
I. Food rations, Emergency 2. Carbohydrates—Metabolism 3. AAF TSEAA MR 691-3J

PB 95439

Meyer, Heinrich
Trotz gleicher chemischer analyse doch keine gleichheit des stoffes. (In spite of simular chemical analysis still no similarity of substances). Jan 1948. 10p (Text in German) Mi $1.25 Ph $1.25
I. Vitamins—Sources—Germany

PB 74052s

Ministerial Documents Branch, Berlin
A collection of reports in the fields of medicine and food chemistry. Abstracts. 1934-1938. 3p Mi $1.25 Ph $1.25
I. Micro FIAT B 252, Frames 2713-2993, abstracts

PB 82069s

Nordischer Maschinenbau, Rudolf Baader K. G., Lübeck, Ger.
Drawings and lists of components for fish processing machines. 1927-1946. 3p Mi $1.25 Ph $1.25

Abstract of Micro FIAT X 95, Frames 1-810 (PB 82069), and Micro FIAT X 96, Frames 811-1580 (PB 74973)

I. Micro FIAT X 95, Frames 1-810, abstract 2. Micro FIAT X 96, Frames 811-1580, abstract 3. Micro BIOS 181, abstract 4. Micro BIOS 182, abstract

PB 95314

Terry, William M.

Japanese Antarctic whaling expedition, 1947-1948. (Statistical summary). Oct 1948. 33p graphs, tables Mi $2.25 Ph $5.00

I. Fishing industry—Japan 2. SCAP NRS PS 29

FUELS AND LUBRICANTS

PB 96079

Eckardt (Herr) and Krienke (Herr)

Messung von reibungskoeffizienten am PTR—gerat. (Determination of coefficients of friction at the State Techno-Physical Laboratory). n.d. 13p diagrs, table Mi $1.75 Ph $2.50

Legends in German

Determination of the value of frictional coefficient was carried out in the Techno-Physical Laboratory on behalf of the DVL with the apparatus for testing oils recently installed in the Research Institute for Testing Materials. By altering the initial testing conditions it was possible to reduce the margin of error. The coefficient of friction was observed for number of materials, including two lubricants at an elevated temperature.

Micro GDC 10/5605T, translation

PB 96499

Graser (Herr)

Erprobung des U-boot-dieselkraftstoffes 665 und des U-boot-schmierstoffes ZDM7 der kriegsmarine im jumo 205 D. (Test of naval U boat diesel fuel 665 and lubricating oil ZDM7 in a jumo 205 D engine). Oct 1942. 9p photos, diagrs Mi $1.25 Ph $1.25

Legends in German

I. Jumo 205 D (Aircraft engine)—Germany 2. ZDM7 (Lubricating oil)—Germany 3. Fuels, Diesel (665)—Germany 4. Gt. Brit. Ministry of Supply 5. Micro GDC 17/280T, translation

PB 18437t

Heinze, R.

The extraction of lubricating oils from brown coal tar. n.d. 29p diagrs Mi $2.00 Ph $3.75

Translation of PB 18437

Legends in German

I. Micro GDC 38/3T, translation 2. ALSOS RFR 309, translation

—62231

PB 96113

Held, A. and Dietz, O.

Experiments on the reduction of condensation trials by admixture of CS2 to the fuel. Apr 1944. 10p drawing, diagrs Mi $1.25 Ph $1.25

Legends in German

I. Exhaust gases—Disposal—Germany 2. Micro GDC 10/5628T, translation 3. ZWB UM 761, translation

PB 96574

I. G. Farbenindustrie A. G., Bitterfeld, Ger.

Specific consumption for the fuel system calcium perchlorate-methanol. 1943. 2f (Text in German) Mi $1.25 Enl Pr $2.50

See PB 96574s for abstracts. 1p. Mi $1.25 Ph $1.25

I. Perchlorates—Production—Germany 2. Micro BIOS FD 2669/47, Frame 1

PB 95127

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.

Use of methane as automobile engine fuel. 1942. 5f (Text in German) Mi $1.25 Enl Pr $2.50

See PB 95127s for abstracts. 1p. Mi $1.25 Ph $1.25

I. Fuels, Automotive—Germany 2. Methane—Germany 3. Micro BIOS FD 2867/46, Item 28, Frames 1-4

PB 95492

I. G. Farbenindustrie A. G., Oppau, Ger.

Correspondence, notes, minutes of conferences on additives for torpedo and weapon oils, alkoxy-alkyl chlorides, tests on fuels and lubricants. 1935-1943. 150f (Text in German) Mi $5.75 Enl Pr $20.00

See PB 95492s for abstracts. 2p. Mi $1.25 Ph $1.25

I. Lubricants—Additives—Germany 2. Chlorides—Germany 3. Fuels—Tests—Germany 4. Lubricants—Tests—Germany 5. Micro BIOS FD 2871/46, Item 54, 55, 56, Frames 1-147

PB 95175

I. G. Farbenindustrie A. G., Oppau, Ger.

Testing of lubricating properties of R200 and R300. 1941. 8f (Text in German) Mi $1.25 Enl Pr $2.50

See PB 95175s for abstracts. 1p. Mi $1.25 Ph $1.25

I. Pumps, Fuel—Germany 2. Micro BIOS FD 2866/46, Item 18, Frames 1-7

PB 95152

I. G. Farbenindustrie A. G., Schkopau, Ger.

Production of ethylene from spirit. 1941-1945. 37f (Text in German) Mi $2.25 Enl Pr $6.25

See PB 95152s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Ethylene—Production—Germany 2. Micro BIOS FD 2608/47, Frames 1-35

PB 96562

I. G. Farbenindustrie A. G., Schkopau, Ger.

TPO lubricant; the production of Kybol. 1942-1945. 9f (Text in German) Mi $1.25 Enl Pr $2.50

See PB 96562s for abstracts. 1p. Mi $1.25 Ph $1.25

1. LK 2200 (Lubricant) 2. Kybol (Code name) 3. Micro BIOS FD 2164/47, Frames 1-8

PB 96111

Kluge, J.

New studies on lubricating capacity and its measurement. n.d. 19p diagrs Mi $1.75 Ph $2.50

Legends in German

Reprint from Mitt. deuts. Akad. Luftfahrtforschung No. 6 pp 299-313.

1. Lubrication, Research—Germany 2. Micro GDC 10/10, 314 (a) T, trans.

PB 95255

Lyons, Orville R. and Richardson, A. C.

The thermal drying of fine coal. Feb 1948. 23p graphs, tables Mi $2.00 Ph $3.75

1. American Institute of Mining and Metallurgical Engineers Inc., New York 2. Coal—Drying 3. Technology—Coal

PB 95399

Marsh, F.

Investigation of horizon mining and area planning as practiced in the Ruhr coalfield, Germany. Aug 1948. 163p drawings, graphs, table Mi $6.25 Ph $21.25

1. Coal mines and mining—Germany 2. BIOS FR 1798, Item 30

PB 95951

Oel und kohle. (Oil and coal). v. 37, Nos. 33-48. Sep-Dec 1941. v. 38, Nos. 1-21. Jan-Jun 1942. 655f (Text in German) Mi $9.00 Enl Pr $85.00

1. Coal—Periodicals—Germany 2. Mineral oils—Periodicals—Germany 3. Micro FIAT O 112, Frames 8231-8886

PB 95972

Oel und kohle. (Oil and coal). v. 38. Jan-Dec 1942.

Deutsche gesellschaft für mineralölforschung. Schriftumschau. (German society for mineral oil research. Review). Nos. 1-48. Jan-Dec 1942. 662f (Text in German) Mi $9.00 Enl Pr $86.25

1. Oil—Periodicals—Germany 2. Coal—Periodicals—Germany 3. Mineral oils—Periodicals—Germany 4. Micro FIAT O 113, Frames 8877-9539

PB 89283

Oppelt, Walter H.

Refining of light oil originating from low temperature carbonization of coal. Aug 1947. 9p drawings Mi $1.25 Ph $1.25

1. Oils, Light—Refining 2. Coal—Carbonization

PB 95354

Rherania-Ossag A. G., Hamburg, Ger.

"Zea" report no. 55/42, on the chromatographic analysis of natural lubricating oils. 1942. 26f (Text in German) Mi $2.00 Enl Pr $5.00

See PB 95354s for abstracts. 2p. Mi $1.25 Ph $1.25

1. Lubricating oils—Analysis—Germany 2. Micro BIOS FD 5190/47, Frames 1-25

PB 96219

Selter, O.

Über die konstitution und eigenschaften von schmierolen und über ihre veranderung durch oxydation. (The constitution and characteristics of lubricating oils and changes due to oxidation). Mar 1938. 15p graph, fold table Mi $1.75 Ph $2.50

Legends in German

Text of table in German

This report may not reproduce well

In order to improve the method of assessment of the behavior of lubricating oils in engines, the composition and constitution of some oils of different origin was determined before and after oxidation from the specific refraction according to Vlugter, Waterman, and van Weston, and from the molecular refraction. It was found in the course of the investigations, that the content of paraffins in a paraffin-base oil was some 6% greater than in a napthenic-base oils was 10% greater than in paraffin-base oils. It could be determined nonambiguously, that the content of aromatics is decreased as a result of oxidation. Oil, from which the products of oxidation had been removed by treatment with an activated clay, exhibited a greater tendency to oxidation than the original oil. Micro GDC 10/5065T, translation

PB 96029

U. S. Air Force and U. S. Navy Dept.

Compound; Corrosion-preventive aircraft engine (heavy oil type). Air Force-Navy aeronautical specification. Dec 1948. 12p drawing Mi $1.75 Ph $2.50

1. Oils, Corrosion preventive 2. AN-C-178

PB 96266

U. S. Field Information Agency, Technical.

The organization and functions of the Economic Group for the Fuel Industry. Sep 1946. 8p charts, table Mi $1.25 Ph $1.25

Legends in German

1. Fuel Industry—Germany 2. FIAT IR EF/FP/4

PB 95489

Wacker, Alexander G.m.b.H., Burghausen, Ger.

Drying of acetylene gas. 1946. 3f MI $1.25 Enl Pr $2.50

See PB 95489s for abstracts. 1p MI $1.25 Ph $1.25

1. Gas, Acetylene—Germany 2. Micro BIOS FD 4357/47, Frame 1 3. Micro BIOS DOC 1919/146/2/518/108, Frame 1 4. BIOS FR 1051 LD, Frame 1

PB 96178

Wolf, L.

Molecular-physical processes occurring in lubrication. n.d. 17p illus, charts, tables MI $1.75 Ph $2.50

Translation from the German

1. Gt. Brit. Ministry of Supply 2. Lubricants—Analysis—Germany 3. Lubrication, Research—Germany 4. Hydrodynamics—Germany 5. Lubricants, Extreme pressure—Germany 6. Micro GDC 10/10, 314-(b)T, translation

INSTRUMENTS

PB 96439

DeBenedetti, S. and others.

Self-delayed coincidences with scintillation counters. n.d. 1p (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

1. Counters, Electronic 2. Geiger counters 3. Atomic power—Research 4. AECD 1855

PB 36473t

Dreyer, H. J.

An instrument for the automatic tracking of curves of functions. Aug 1944. 11p photos, drawings, diagrs MI $1.75 Ph $2.50

It is necessary with complicated mathematical instruments as well as in some other cases, to track certain curves of functions automatically, either to economize in labor or to eliminate personal errors. An instrument has been developed by the Institute for Applied Mathematics at the Darmstadt Technical College, which effects tracking photoelectrically with an accuracy of plus or minus 0.1 mm. ZWB FB 1979, translation

PB 94583

Fillinger, A. E.

Kapatest bore inspection apparatus. Dec 1947. 14p photos MI $1.75 Ph $2.50

The apparatus was carefully examined and set up for checking. In general, the apparatus was in good condition. There was a slight nick in the front element of the objective lens near its center. This does not affect its function except for a slight loss of light. The wooden case used for holding the cone assemblies had several unused positions suggesting that there may be additional components which have been lost. Current was supplied to the projection lamp by means of the laboratory variac since the transformer and resistor furnished were designed for 220 volts. Several specimens with bores having different surface irregularities were selected for inspection. Using one of the specimens, the image was projected on the screen by centering the projection cone in the bore and focusing the lens for the sharpest image. The light from the lucite holder is reflected to the bore by the first cone surface, the second cone picks up the illuminated surface of the bore and reflects it forward parallel to the axis where it is picked up by the projection lens. The lucite holder and projection cone are fixed in relation to the projection lens after focusing, so the specimen may be moved back and forth to inspect the various points along the bore without throwing the image out of focus. It was found, however, that the size of the image varied considerably with a slight out of focus condition. Since all useful light passes between the cone and the bore to be examined, various cones were tried for one of the bores to determine the most desirable cone diameter. A cone with a diameter .007" less than the bore prevented practically all light from passing and no image was formed. When the cone was comparatively small the area of the bore was large for the reflection area of the cone so the detail in the image was lost. It was found that a cone with a diameter approximately 1/16 inch less than the bore gave the best compromise.

PB 36441t

Gohlke (Herr)

Über die schwingungseigenschaften von quarzdruckmessgeraten. (The oscillation properties of piezoelectric measuring instruments). May 1940. 51p illus, drawings, diagrs MI $2.75 Ph $7.50

Translation of PB 36441

Legends in German

The investigation of combustion conditions in engines required a pressure measuring apparatus which is capable of rapid response over a wide range. Lately the piezo-electric pressure measuring technique has been introduced over a widening range, as it provides particularly useful properties as an oscillation measuring technique for high frequencies. Previously it was only possible to estimate the possibilities of errors in piezoelectric pressure measuring arrangements for dynamic measurements because of the lack of suitable control methods, and this was particularly the case for pressure measuring units. In the present note a measuring technique will be developed which permits the determination of the resonance curves of curves of quartz pressure measuring units. From the frequency response of the individual component parts of the quartz pressure measuring arrangement

the oscillation properties of the complete equipment can now be completely estimated. ZWB FB 1220, translation

PB 94676

H. Maihak A. G., Hamburg, Ger.

Die Maihak messaite für die messung von dehnung und zugkraft, drehmoment und leistung, betonspannung und bodendruck. (Maihak instruments for strain tension, torque, output, tensile strength of concrete, and ground pressure measurements). 1942-1946. 74p drawing, tables Mi $3.50 Ph $10.00

An illustrated pamphlet, results of tests carried out by the German Materials Testing Laboratory, and several testimonial letters. Photographs and drawings are included. In German.

PB 95534

Kesel, Georg, G.m.b.H., Kempten, Ger.

Kreisteilmaschine. (Circular dividing machine). n.d. 40p photos, drawings (Text in German) Mi $2.25 Ph $5.00 See also 95533

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1. Instruments, Measuring—Catalog 2. Micro FIAT C-336, Frames 101449-101488

PB 95533

Kesel, Georg, G.m.b.H.,

Kreisteilmaschine K 20. (K 20 circular dividing machine). n.d. 25p drawings only Mi $2.00 Ph $3.75

See also PB 95534

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Legends in German

1. Instruments, Measuring—Catalog 2. Micro FIAT C-336, Frames 101489-101513

PB 95531

Kesel, Georg G.m.b.H., Kempten, Ger.

L2-Hand graduating machine (straight), for linear scales etc. Oct 1946. 18p photos, drawings, tables (Text in German) Mi $1.75 Ph $2.50

See also PB 95532

This report may not reproduce well

1. Instruments, Measuring—Catalogs 2. Micro FIAT C-330, Frames 101380-101397

PB 95532

Kesel, Georg, G.m.b.H., Kempten, Ger.

L3- Automatic graduating machine (straight) for linear scales, etc. Oct 1946. 23p drawings only Mi $2.00 Ph $3.75

See also PB 95531

This report may not reproduce well

Legends in German

1. Instruments, Measuring—Catalog 2. Micro FIAT C-336, Frames 101426-101448

PB 95395

Kohman, T. P.

General method for determining coincidence corrections of counting instruments. Jun 1945. 18p tables, graphs Mi $1.75 Ph $2.50 (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

The method herein described for determining and applying coincidence corrections in counters is an extension of the general method of paired sources. Several pairs of radioactive sources are used, and for each pair, counts are taken with the instrument on the sources separately and together. A general relationship between the recorded counting rate R and the "true" rate N is assumed, being the first few terms of an infinite power series:

$$N = R + \tau R^2 + \nu R^3 + \phi R^4 + \ldots.$$

where τ is the resolving time of the counter and ν, ϕ, ... are independent parameters. By a least-squares method, the values of the parameters for the instrument in question are determined which most adequately correlate the experimental data. Subsequent measurements made with the instrument can then be corrected by means of this equation. A few examples of the use of this method are presented. They indicate that the method is a satisfactory solution of the problem and should be of considerable value. MDDC 905

PB 95738

Nickson, James J. and Barkulis, Sam S.

Apparatus to facilitate intravenous injections in the mouse. Jul 1947. 3p photo, drawing (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

1. Mice—Physiology 2. Injections, Intravenous 3. Atomic power—Research 4. MDDC 1308

PB 96170

Seyforth, Hellmut H. G.

General and special systemmatic theory of complicated gyroscopic instruments. n.d. 106p diagrs Mi $4.50 Ph $13.75

Legends in German

1. Gyro instruments—Germany 2. Gt. Brit. Ministry of Supply 3. Micro GDC 3A/6T, translation 4. RTP/TIBT, translation

PB 95914

U. S. Air Force and U. S. Navy Dept.

Indicator—temperature, electrical-resistance, single, -50° to +50°C. Nov 1948. 1p drawing Mi $1.25 Ph $1.25

1. Temperature—Indicators 2. Indicators, Electromagnetic 3. AN 5791

PB 95913

U. S. Air Force and U. S. Navy Dept.

Indicator—Temperature, electrical-resistance, -50° to +300°C. Nov 1948. 1p drawing Mi $1.25 Ph $1.25

1. Temperature—Indicators 2. Indicators, Electromagnetic 3. AN 5792

—62231

PB 95916

U. S. Air Force and U. S. Navy Dept.

Indicators; Temperature, electrical-resistance, -50 to +300°C. Nov 1948. 16p drawing Mi $1.75 Ph $2.50

I. Temperature—Indicators 2. Indicators, Electromagnetic 3. AN-I-51

PB 95915

U. S. Air Force and U. S. Navy Dept.

Trainers; Astro compass. Dec 1948. 5p Mi $1.25 Ph $1.25

I. Compasses, Astro 2. AN-T-1008

PB 95728

Wu, C. S. and others.

Thin window counter with special mica to glass seal. n.d. 10p photos, graph (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

A thin window counter with special mica to glass seal is developed, especially for the detection of low energy electrons from radioactive isotopes such as C^{14}. It is simple to construct and has proved to be vacuum tight. It can be operated without external quenching and exhibits flat plateaus of 100 to 300 volts. The average useful life of these counters is around a year or more. The efficiency of the counters is very satisfactory. MDDC 877

LEATHER AND LEATHER PRODUCTS

PB 95846

Collegium. Nos. 1-12. 1939. Nos. 1-12. 1940. Nos. 1-3. 1941. 869f (Text in German) Mi $9.00 Enl Pr $112.50

I. Leather—Periodicals—Germany 2. Micro FIAT E 99, Frames 8014-8883

PB 95934

Collegium. v. 848, No. 12. 1940. v. 849/860, Nos. 1-12. 1941. v. 861/872, Nos. 1-12. 1942. 452f (Text in German) Mi $9.00 Enl Pr $58.75

I. Leather—Periodicals—Germany 2. Micro FIAT K 44, Frames 9091-9543.

PB 19920t6

Deutsche Celluloid-Fabrik A. G., Eilenburg, Ger.

Process for manufacturing an incombustible artificial leather material containing nitrocellulose. Sep 1948. 6p Available from Research Information Service, 509 Fifth Avenue, New York, N. Y. $9.50

I. Micro FIAT Patent 146, Frames 5699-5702, trans

PB 96269

Hawkins, L. G.

Production and distribution of leather and shoes in Germany. Aug 1945. 4p tables Mi $1.25 Ph $1.25

I. Shoes—Germany 2. Leather—Germany 3. FIAT IR EF/GG/1

PB 95791

I. G. Farbenindustrie A. G.

The tanigan extra stuffing materials. (Translation of "Die tanigan extra gerbstaffe"). Oct 1948. 40p tables Mi $2.25 Ph $5.00 Mimeo $1.00

I. Leather—Finishing 2. Leather dressings 3. Leather—Lubricants 4. Leather—Training 5. LETOR 4, trans

PB 95790

Johnson, Kathleen.

German exchange lipids for leathers. Oct 1948. 37p Mi $2.25 Ph $5.00 Mimeo $1.00

I. Derminol (Trade name) 2. Tanning agents, Synthetic—Preparation 3. Tanning industry 4. Leather—Tanning 5. Sulfonyl chlorides 7. LETOR 3

PB 96537

Samuels, H. and others.

I. G. products for the leather industry. n.d. 28p Mi $2.00 Ph $3.75

I. Leather industry— Germany 2. I. G. Farbenindustrie A. G. 3. BIOS FR 1813, Item 22

PB 95396

Sutcliffe, A. and others.

German rawhide picker industry. For textile weaving looms. May 1947. 25p photos, drawings Mi $2.00 Ph $3.75

Legends in German and English

I. Leather—Manufacture—Germany 2. BIOS FR 1681, Item 22

MACHINERY

PB 96006

Adderley, J. W.

German gas turbine developments during the period 1939-1945. 1949. 44p illus, tables, drawings Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.35

I. Turbines, Gas—Germany 2. BIOS OR 12

PB 96031

Bjerninger, Sigfrid

Svensk standard för rören till Jordbrukets transportfläktar. (Swedish standards for farm transport blower piping). 1948. 20p drawings (Text in Swedish) Mi $1.75 Ph $2.50

Summary in English

I. Jordbrukstekniska Institutet, Ultuna, Uppsala, Sweden. Meddelande no. 220

In Sweden there are about 20 firms engaged in the manufacture of blower piping. As a rule, each firm makes only a few different sizes of piping

but, as the different manufacturers have decided (at least to some extent) on different diameters for piping to be used with blowers of approximately the same size, it is often impossible to join together pipes from different manufacturers. These differences in diameter are in many cases only 5 or 10 millimeters, and are thus of no significance from the point of view of efficiency of operation, but are of considerable inconvenience to farmers and farm equipment dealers. In response to requests from both agricultural and industrial circles, the Institute of Agricultural Engineering started work in May 1947 on the standardization of blower piping. This work has led to the establishment of Swedish standards for farm transport blower piping. The standards provide for a total of ten pipe diameters, which means that the number is reduced to a third of that now in use. The diameters standardized are, for *chaff and grain blowers:* 120 (not for grain), 135, 150, and 180 mm; for *straw blowers and dust extractors:* 250 (not for straw), 310, and 370 mm; and for *ejector type blowers used for transport of hay and sheaves of corn:* 500, 550 and 600 mm; all diameters are *nominal inside diameters.* The pipes are joined together by inserting the end of one into the corresponding end of the next. Limits for the diameters of the pipe ends are given in the standard table. The length and general construction of the inserts are not standardized. The thickness of plate from which the pipes are made is not standardized, but recommendation as to minimum plate thicknesses for the different sizes of pipes are included in the standard table. For pipes with a diameter between 120 and 250 mm, a minimum thickness of 0.7 mm is recommended; for bends in grain blower piping, however, a minimum thickness of 1.5 mm is recommended, because of the extra wear to which the plate is subjected at these points. Pipes with 310 or 370 mm diameter should be made of plate at least 1 mm thick. The plate thickness recommended for pipes with 500 to 600 mm diameter is 1.25 mm, or possibly 1 mm if special reinforcement is used. Length of pipes, quality of material, and the angle and radius of pipe bends are not standardized. The nomenclature used in connection with blower piping, and the method of designating the different sizes, are given in the standard table.

PB 94309

Buie, E. C.

French underwater gas cutting torch. Nov 1944. 4p Mi $1.25 Ph $1.25

1. Cutting torches—France 2. CIOS X-27, Item 27

PB 95925

Daimler-Benz A. G., Stuttgart, Ger.

Verbrennungs-kraftmaschinen. (Internal combustion engines (detail and assembly drawings)). 1937-1945. Motore für schnellboote. (Engines for speed boats (detail and assembly drawings)). n.d. 649f (Text in German) Mi $9.00 Enl Pr $83.75

1. Engines, Internal combustion—Germany 2. Engines, Marine—Germany 3. Micro FIAT E 56, Frames 801-1450

PB 95828

Fee, John C.

Power winches, Part A; Concrete mixers, Part B. Book IV. Aug 1946. 20p Mi $1.75 Ph $2.50

1. Mixers, Concrete—Japan 2. Winches—Japan 3. U. S. 5250th Technical Intelligence Co., Tokyo

PB 96542

Fromholz, A. Stanley

Carbide furnace gas flues at Ludwigshafen. Jan 1949. 45p Mimeo: $.25

1. Flues, Gas—Germany 2. FIAT FR 1261

PB 55974s

Gesellschaft für Linde's Eismaschinen A. G., Wiesbaden, Ger.

Ferroprints of layouts for a refrigerating plant. Abstracts. 1944. 2p Mi $1.25 Ph $1.25

Supplement 1 to PB 55974

1. Micro FIAT K 122, Frames 1-28, abstracts 2. Micro BIOS FDX 222, abstracts

PB 96091

Himmler, C. R.

Concerning a self-governing hydraulic power unit for controlling weapons and fuel feed at high pressures. Aug 1944. 50p drawings (2 fold drawings) diagrs Mi $2.50 Ph $6.25

Legends in German

For weapon control a hydraulic pump which is common to several systems is necessary. The replacement of the ungoverned gear-driven pump by a self-governing pump makes it possible to keep oil temperatures down to admissible values. The piston pumps developed which deliver 50 and 120 liters per minute are here described. The manner of their use for armament control and as starters, fuel pumps, and for driving power-operated equipment is also given. The influence of tank volume on the method of working is touched upon. ZWB UM 1484, trans.

PB 96106

Kress, H.

Reducing the output losses in internally cooled turbines. Dec 1943. 4p drawings Mi $1.25 Ph $1.25

Legends in German

By suitably deflecting the flow of cooling air on its discharge from the blading of internally cooled turbines we can achieve a considerable reduction of the output loss normally caused by the flow of cooling air. Tests indicated that, by an appreciable shortening of the blade front, in the

case of internally cooled, sheet metal impeller blades, a lessening of the output loss to about one third of the original value could be achieved. A thorough investigation of the possibilities revealed by this fact will probably lead to still further improvements. ZWB FB 1887, translation

PB 96142

Leist, K. and Knornschild, E.
Exhaust gas turbines and reaction jets. May 1939. 40p Mi $2.50 Ph $5.00
After a brief tabulation of the advantages of pure gas turbine power units and reaction jets, compared with internal combustion engines, the possibility is discussed of using very high gas temperatures generated under impact of the relative wind. A number of special types of power unit which derive their propulsive thrust partly from reaction and partly from turbine-driven airscrews are, therefore, compared with regard to output concentration, fuel consumption and unit weight being contrasted with one another as well as with the internal combustion engine. ZWB FB 1069, translation

PB 94673

Marcus, Helmbrecht & Co., Leipzig, Ger.
Helma erzeugnisse. (Helma products). n.d. 44p photos, drawings, tables Mi $2.50 Ph $6.25
Text in German
1. Painting equipment—Germany 2. Dust removal—Equipment—Germany
An illustrated catalog of "Helma" spray painting and dust removal equipment and accessories

PB 94849

Maschinenfabrik Georg Kiefer, Stuttgart, Ger.
Abuft- und umluft-kanal für spiralband-trockner. (Air duct for spiral strip dryer. Print no. 2684). Oct 1942. 8p drawing only Mi $1.25 Ph $1.25
Legends in German
This report may not reproduce well
1. Dryers, Spiral strip—Germany

PB 94849s2

Maschinenfabrik Georg Kiefer, Stuttgart, Ger.
Hörde für spiralbandtrockner. (Hurdle for spiral strip dryer. Print no. 2685). Nov 1942. 8p drawing only Mi $1.25 Ph $1.25
Legends in German
Supplement 2 of PB 94849
This report may not reproduce well

PB 94849s5

Maschinenfabrik Georg Kiefer, Stuttgart, Ger.
Kettenspannung an der auf gabe zum spiralbandtrockner. (Chain tightener at the feed for spiral strip dryer. Print no. 2688). Nov 1942. 8p drawing only Mi $1.25 Ph $1.25
Legends in German

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Supplement 5 of PB 94849
This report may not reproduce well

PB 94849s3

Maschinenfabrik Georg Kiefer, Stuttgart, Ger.
Kettenspannung zum spiralbandtrockner. (Chain tightener for spiral strip dryer. Print no. 2686). Nov 1942. 16p drawing only Mi $1.75 Ph $2.50
Legends in German
Supplement 3 of PB 94849
This report may not reproduce well

PB 94849s4

Maschinenfabrik Georg Kiefer, Stuttgart, Ger.
Oberer windelhebel für kettenspannung zum spiralbandtrockner. (Upper toggle lever for chain tightener for spiral strip dryer. Print no. 2686-2). Nov 1942. 8p drawing only Mi $1.25 Ph $1.25
Legends in German
Supplement 4 of PB 94849
This report may not reproduce well

PB 94849s

Maschinenfabrik Georg Kiefer, Stuttgart, Ger.
Schema der automatischen regebung und temperatur. Messung. (Automatic control and temperature measurement for spiral strip dryer. Schematic. Print no. 2683). Sep 1942. 2p drawing only Mi $1.25 Ph $1.25
Legends in German
Supplement 1 of PB 94849
This report may not reproduce well

PB 94849s7

Maschinenfabrik Georg Kiefer, Stuttgart, Ger.
Spralbandtrockner: Längs- und querschnitt. (Spiral strip dryer. Longitudinal and cross section. Print no. 2689). Dec 1942. 32p drawing only Mi $2.25 Ph $5.00
Supplement 7 of PB 94849
This report may not reproduce well

PB 94849s8

Maschinenfabrik Georg Keifer, Stuttgart, Ger.
Umband. frischluftanlage für den spiralbandtrockner. (Reconstruction of the ventilating system for the spiral strip dryer. Print no. 2694). May 1943. 8p drawing only Mi $1.25 Ph $1.25
Legends in German
Supplement 8 of PB 94849
This report may not reproduce well

PB 94849s6

Maschinenfabrik Georg Kiefer, Stuttgart, Ger.
Unterer winkelhebel für kettenspannung zum spiralbandtrockner. (Lower toggle lever for chain tightener for spiral strip dryer. Print no. 2686-1). Nov 1942. 8p Mi $1.25 Ph $1.25
Legends in German
Supplement 6 of PB 94849
This report may not reproduce well

PB 95147

Maschinenfabrik Sack G.m.b.H., Düsseldorf, Ger.

Drawings for bar cutters, bar reels and plate straightening and shearing machines. 1933-1944. 607f Mi $9.00 Enl Pr $78.75

This reel may not reproduce well

No abstract available

1. Machines, Shearing—Germany 2. Cutters—Germany 3. Plate—Straightening—Germany 4. Micro BIOS FD 5310/47, Frames not numbered correctly

PB 86193t

Müller, A.

The internal cooling of exhaust gas turbine blades. Jul 1941. 70p photos, drawings, diagrs Mi $3.00 Ph $8.75

Translation of PB 86193

Legends in German

In controlling the high gas temperatures in exhaust gas turbines, special measures are required to reduce the blade temperature to a degree corresponding to the strength of the material. In this report the various present day methods for controlling blade temperatures in exhaust turbines are discussed and compared in their suitability for aircraft power plant. It is well known that internally cooled, hollow blades have been successfully used in exhaust gas turbines, although there are no full experimental results or theoretical analyses of the relative temperature conditions. The BMW Company therefore carried out temperature measurements on blade grids and turbine rotors with hollow blades. (The experiments were carried out in the Preliminary Development Section of BMW FLUGMOTOREN/GESELLSCHAFT, MUNICH). The method of the experiments permits direct comparison of the results of the grid test with measurements on turbine rotors. Differential equations for the temperature development in hollow blades of prismatic section and for the heating of the cooling air in the cooling duct of the blade, are set up and their analytical solutions found. The results, obtained for conditions at ground level, are converted by calculation for all altitudes. The co-efficients of heat transfer in the cooling duct and on the exterior of the blade section are examined in detail. The optimum dimensions of a hollow blade for a given cooling output are established, giving the designer guidance in the development of hollow-bladed rotors. Micro GDC 10/1239T, translation.

PB 96138

Müller, K. J.

Theoretical investigation of the cooling of gas turbines. n.d. 36p diagrs Mi $2.25 Ph $5.00

Legends in German

The difficulties introduced due to very high temperatures in gas turbines can be overcome by cooling the turbine components. This report discusses the following cooling methods: air and liquid cooling of hollor rotors, cooling by circulating a thin film of air round the turbine blades, and direct air flow cooling. Special attention is paid to questions of temperature distribution and heat stress, and the effect of these upon the endangered components, as well as to the loss of output due to cooling. The basic principles introduced are outlined briefly. ZWB 1918, translation.

PB 95277

Platon, M.

Essais de Neuves-maisons relatifs au soufflage d'un haut-fourneau au vent suroxygéné. (Tests from new firms relating to fumes from oxygen blast furnaces). Mar 1947. 12p tables, drawings (Text in French)

1. Furnaces—Design—France 2. Furnaces, Blast—France 3. Commission d'Ingenieurs des Hauts-Fourneaux Thomas

PB 94671

Rentsch, Fritz, Maschinenfabrik, Leipzig, Ger.

Leichttransportablen farbnebelarmen farbspritzanlagen. "Refri". (Refri portable spray painting units). n.d. 4p photos Mi $1.25 Ph $1.25

1. Painting equipment—Germany

PB 36429t2

Schorner, C.

Entwicklung der DVL-hohlschaufel-Abgasturbine. (Development of the DVL hollow-blade exhaust gas turbine). Jan 1942. 30p photos, drawings, diagrs Mi $2.00 Ph $3.75

Translation of PB 36429

Legends in German

Utilization of the exhaust energy of a piston engine by expansion of the working medium in a compactly constructed gas turbine requires the control of high temperatures and equally high mechanical stressing of the parts, on the assumption that considerations of general economy of the cycle, and structural simplification of the power unit, require the avoidance of inter-cooling of the exhaust gases. The method of cooling in a hollow-blade turbine with forced circulation of the intaken cooling air (in the ambient condition) by the centrifugal effect of rotation, which is particularly suitable for dealing with large volumes of gas, can be adapted for high-duty performance by the following means: (1) increasing the specific cooling effect of the air in the blade; (2) restriction of the volume of cooling air in accordance with the required life of the blade, and consequent reduction of the power loss in circulating the cooling air. The results of tests made with the first experimental installations of this type are described. ZWBFB 1544, translation.

PB 96648

U. S. Bureau of Aeronautics.

Service instructions for auxiliary power plant, Navy type 1, Lawrance model 30C-2. Jan 1944.

—82231

177p photos, drawings (3 fold drawings) Mi $6.50 Ph $22.50

1. Power plants, Auxiliary—United States
2. NAVAER 03-65-501

PB 95286

Westinghouse Electric and Manufacturing Motor Division, Buffalo, N. Y.

A-C magnetic oil field pumping control "De-ion" combination linestarter for single-speed squirrel-cage pumping motors. Sep 1948. 2p illus, drawings Mi $1.25 Ph $1.25

1. Pumps, Motor driven

MEDICAL RESEARCH AND PRACTICE, INCLUDING CLINICAL APPLICATION OF DRUGS AND PHARMACEUTICALS

PB 95651

Addis, T.

Possible deleterious effects of proposed blood substitutes. Final report. Jun 1946. 12p tables Mi $1.75 Ph $2.50

1. Blood—Substitutes—Physiological effects
2. U. S. Office of Scientific Research and Development. Committee on Medical Research

PB 96368

Altman, K. I. and others.

Hemin synthesis with glycine containing C^{14} in its alphacarbon atom. n.d. 3p tables (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

It has been shown by Shemin and Rittenberg that the nitrogen component of glycine is incorporated in the hemin of hemoglobin. This left unanswered the question whether the carbon skeleton of glycine would also function as a specific precursor of the pyrrol in hemin. In order to investigate the latter point, $C^{14}H_2NH_2COOH$, prepared by R. Ostwald of the Radiation Laboratory, University of California, was fed to normal rats and to rats which had been rendered anemic by previous phenylhydrazine feeding. These animals were rapidly forming new erythrocytes as indicated by a high reticulocyte count. The radioactive glycine was administered by stomach tube in a single dose of approximately 1μc/100 g body weight. At varying intervals animals were bled as completely as possible from the carotid artery. Hemin was prepared following M. Nencki and J. Jaleski, globin according to M. L. Anson and A. E. Mirsky, and hemoglobin by crystallization after hemolysis. C^{14} was determined according to a method developed by W. F. Bale and R. E. Masters. It was found that C^{14} was incorporated in hemin and globin as early as 24 hours after feeding in the normal and anemic groups. The C^{14} activity of hemin was greater in the phenylhydrazine-treated animals as compared with the normal ones. The concentration of C^{14} per gram hemin was about 7 to 9 times that found per gram globin. From this evidence we conclude that the alpha-carbon of glycine is a direct precursor of a portion of the hemin molecule. MDDC 1758

PB 96416

Field, J. and Rekers, P.

Ionizing irradiation disease and a study of the protective nature of flavonones. Jan 1948. 40p graphs, tables (Limited supply mimeo $.20) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.20)

In dogs given 350 r of single dose total body x-irradiation, 64 percent (16 of 25) of untreated animals died, while, when a preparation from lemon peel was administered continuously pre- and post-radiation, 36 percent (4 of 11) of the animals succumbed. When the flavonol glycoside, rutin, was administered continuously pre- and post-radiation, 10 percent (3 of 25) of the animals succumbed. Clinical signs and post-mortem evidence of a hemorrhagic diathesis were most prominent in the untreated irradiated dogs. A generalized purpura was observed in the post-mortem examination of dogs treated with lemon peel extract and rutin, but the clinical signs of petechiae and spontaneous purpura in all of the treated animals were significantly reduced. The red blood cells of dogs given 350 r single dose total body x-irradiation did not develop increased fragility. The rate of anemia production and increased sedimentation rate was reduced with rutin therapy. In dogs receiving rutin, there were observed significantly more erythroblast forms and nucleated red blood cells than seen in the blood of untreated controls. Untreated dogs exhibited a considerable increase in the reticulocytes in the post-radiation recovery period. In a small series of dogs given 450 r of single dose total body x-irradiation, signs of purpura and hemorrhage as a cause of mortality appeared less extensive than at 350 r x-irradiation. Rutin therapy neither provided a detectable reduction in clinical signs or mortality. Rutin, similarly did not prolong the survival of rats given 700-750 r single dose total body x-irradiation. The administration of rutin to dogs failed to alter the rate and extent of urinary transmission of bovine albumin introduced intraperitoneally. Using the 350 r single dose total body irradiation of dogs as an assay procedure the following flavone substances have been tested, hesperidin, hesperidin methyl chalcone and esculin. Only 17 percent (1 of 6) of the hesperidin-treated dogs died while the remainder showed reduced purpuric manifestations when compared with untreated dogs. However, 67 percent (4 of 6) of the dogs given hesperidin methyl chalcone and 50 percent (3 of 6) of the dogs given esculin succumbed with typical major hemorrhagic

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changes. It was found that only in the terminal state did as many as 48 percent of 350 and 450 r single dose total body x-irradiation dogs evidence a septicemia. A wide variety of organisms were isolated. It is suggested that a primary cause of death in the 350 r single dose total body x-irradiated dogs is vascular disintegration. In some as yet undetermined manner rutin and probably to a lesser extent, hesperidin, reduces or prevents this phenomenon. By supporting the irradiated animal until spontaneous recovery of inhibited synthetic functions ensues, the flavonol substances reduce the predictable mortality. Of the dogs given large doses of ascorbic acid, 50 percent (3 of 6) failed to survive when exposed to 350 r single dose total body x-irradiation. It is suggested that the existence of a "vitamin P" entity is supported by the present report, and the technique of x-irradiation to induce vascular disintegration is adaptable for direct assay of "vitamin P" potency. MDDC 1672.

PB 95906

Hall, V. E. and others.

The metabolic activity of the central nervous system as it affects the thermostatic behavior of the body. Nov 1948. 93p tables Mi $4.25 Ph $12.50

1. Vaccines 2. Body, Human—Temperature 3. Physiology—Research 4. AAF TSEAA MR 696-113D

PB 95633

Hoff, Ebbe Curtis

Bibliographical sourcebook of compressed air, diving and submarine medicine. Feb 1948. 392p Available from Superintendent of Documents, Government Printing Office, Washington 25, D. C. $2.50

1. Medicine, Naval 2. NAVMED 1191

PB 96380

Langham, Wright H.

Determination of plutonium in human urine. Aug 1947. 4p table (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

A method is given for the analysis of 24-hour urine samples collected from personnel exposed to plutonium. A statistical interpretation of results and the basis of the 1 microgram tolerance is given. MDDC 1555.

PB 94891

Langham, Wright H.

Metabolism of plutonium in the rat. May 1948. 23p diagr, graphs, tables Mi $2.00 Ph $3.75 (Limited supply mimeo $.15) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.15)

This report gives a comprehensive summary of the project literature dealing with the absorption, excretion, and body deposition of plutonium when administered in various forms and by various routes to the rat. Additional experimental data are presented regarding the metabolism of plutonium when administered to the rat by intravenous injection. The results indicated the following: (1) The first day following intravenous injection of $PuO_2(NO_3)_2$, the urinary excretion of plutonium was 7.5 percent of the dose as compared to 0.33, 0.57, and 0.71 percent when administered as $PuCl_3$, $Pu(NO_3)_4$, and Pu^{+4} citrate complex, respectively. Fecal excretion during the first day was correspondingly lower following injection of $PuO_2(NO_3)_2$. On the thirtieth day following intravenous injection there were no significant differences in either urinary or fecal excretion of plutonium administered as $PuCl_3$, $Pu(NO_3)_4$, Pu^{+4} citrate complex, and $PuO_2(NO_3)_2$. At this time the average urinary excretion was 0.014 percent of the injected dose and the average fecal excretion was 0.22 percent. The average ratio of fecal to urinary excretion was 16/1. Urinary and fecal excretion curves are given for all forms of plutonium injected. (2) The skeleton was the principal site of deposition regardless of the form in which the plutonium was injected. Four days following injection of plutonium as $PuCl_3$, $Pu(NO_3)_4$, Pu^{+4} citrate complex, and $PuO_2(NO_3)_2$ skeletal deposition was 44.9, 29.3, 56.9, and 56.5 percent of the injected dose, respectively. Deposition in the liver under the above conditions was 22.9, 39.7, 9.6, and 9.1 percent of the injected dose, respectively. Deposition of plutonium in kidney, spleen, and in "balance" was not greatly affected by the form in which the plutonium was administered. (3) The size of the injected dose of Pu^{+4} citrate complex did not affect the percent of the dose excreted in the feces and urine. Likewise, the size of dose did not alter the percent of injected material present in the various tissues six days following injection. (4) When Pu^{+4} was administered orally in 5 percent sodium citrate solution, the presence of the citrate seemed to increase absorption of the plutonium from the gastro-intestinal tract. Absorption was still quite low—only 0.3 percent of the administered dose. Seventy-eight percent of the plutonium absorbed from the gastrointestinal tract was deposited in the skeleton and 7.3 percent in the liver. Body deposition of plutonium absorbed via this route seems to resemble that of plutonium injected intravenously as $PuO_2(NO_3)_2$ or Pu^{+4} citrate complex. AECD 1914.

PB 96415

Lesko, Roman

Determination of beryllium in mouse tissues. Jan 1948. 7p graphs, tables (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

The method which is a modification of the Fairhall method for the determination of beryllium in animal tissues is based on the measurement of the

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orange-red lake produced with quinizarin-2-sulfonic acid and beryllium in neutral ammonium acetate solution. The light absorption due to the orange-red lake is best measured spectrophotometrically at 575 millimicrons. Optimum conditions for the determination are the final pH of 7 for the solution which contains an optimum concentration of $NH_4C_2H_3O_2$ and dye, the period and temperature for warming, and the absence of interfering ions such as iron, zinc, fluoride, thiocyanate, and phosphate. The modifications introduced are the use of the Beckman Spectrophotometer for the measurement of the color intensity and the purification of the quinizarin-2-sulfonic acid and selenous acid, the method for the color development and the procedure for the ashing of the animal tissued. These modifications show that animal tissues may be ashed with no volatilization of beryllium and that the color desired can be controlled adequately to detect as little as 0.5 microgram of beryllium in pure solution. The average precision and accuracy is ±0.3 microgram in the range of 1 to 18 micrograms of beryllium. AECD 1857

PB 95575

Mollison, P. L. and others.

The Rh blood groups and their clinical effects. 1948. 74p tables, graphs Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.55

1. Blood—Agglutination 2. Blood—Research 3. Blood transfusion 4. Erythrocytes—Transfusion 5. Blood groups 6. MRC M 19

PB 96479

Rekers, Paul E.

Cultivation of the hematopoietic tissues by tissue culture methods. n.d. 24p drawings, tables (Limited supply mimeo $.15) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.15)

Cultivation of normal adult bone marrow from dog and rabbit resulted in an immediate and abundant migration or proliferation of cells from the explant. For the most part these cells were of the myeloid series and in the latter stages of maturation. This migration persisted up to about 4 days after explantation when fibroblast growth began and overran the culture within 10 to 14 days. The cultivation of bone marrow by roller tube and flask techniques shows no significant differences in the rate, the magnitude, or the duration of growth. Slide cultures invariably showed less evidence of growth but were more suitable for detailed cytological examination. A study of standard media such as chicken plasma, heterologous adult and/or embryonic sera, embryonic juices and salt solutions indicates that long term cultivation of hematopoietic tissues can not be sustained by the media and proportions so tested. The absence or variations in concentration of dextrose has no appreciable inhibiting or stimulating effect on marrow cells. High concentrations of O_2 and high concentrations of CO_2 initially promote growth, but the end result is about the same. The freezing of media does not appear to effect the growth of cells in tissue culture. Bone marrow, explanted from animals whose marrow had been stimulated by acute bleeding or subcutaneous injection of turpentine, shows a marked increase in cellularity. The cultivation of marrow from radiated animals indicates that the production of marrow parenchymatous elements decreases with time after radiation up to and including the 21st day of radiation. Beginning with the 28th day after radiation, a production of parenchymatous cells is again noted. Cultivation of the spleen results in an initial outpouring of round cells, probably lymphocytes. As these cells disintegrate, small granular cells with processes are seen. In all probability these latter cells are early fibroblasts. The cultivation of embryonic spleen and bone marrow did not differ conspicuously from the cultivation of adult spleen and bone marrow. MDDC 1763.

PB 94874

Rothstein, Aser

Mechanism of action of uranium on carbonhydrate metabolism of yeast. Nov 1947. 18p graphs, tables Mi $1.75 Ph $2.50 (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

Although the kidney is the organ of prime interest in studying the effects of uranium on mammals, technical difficulties preclude a thorough study of the precise mode of action of uranium on the kidney cells. To avoid some of these difficulties, a study was undertaken of the action of uranium on yeast cells with the hope that some of the findings might be applicable to kidney cells as well. This report constitutes a preliminary survey of work with the yeast cell. MDDC 1562

PB 85013

Schaltenbrand, Georg and others.

Neurology, Part III. 1948. 131p (Text in German) Mi $5.50 Ph $17.50 Mimeo: $3.00

For Part I see PB 95678; Part II PB 95686

1. Neurology—Germany 2. U. S. Field Information Agency, Technical

PB 85015

Schoen, Rudolf and others.

Internal medicine, Part I. 1948. 388p (Text in German) Mi $9.00 Ph $48.75 Mimeo: $3.00

For Part II see PB 95683

1. Medicine, Internal—Germany 2. U. S. Field Information Agency, Technical

PB 95423

Sheppard, C. W. and Hahn, P. F.

Techniques in the handling of radioactive isotopes used in medical therapy and the preparation

of radioactive celloidal gold. Nov 1947. 23p illus, drawing Mi $2.00 Ph $3.75

1. Colloidal gold, Radioactive 2. Radioisotopes 3. Therapeutics 4. Radioactivity—Protection 5. Atomic power—Research 6. MDDC AEC ID Circ. A-3

PB 95424

Skipper, Howard E. and others.

Techniques for the synthesis and metabolic study of urethan ($NH_2C^{14}ET$). Sep 1947. 9p drawings Mi $1.25 Ph $1.25

1. Carbamic acid, Ethyl ester 2. Cancer—Prevention 3. Cancer—Therapy 4. Atomic power—Research 5. MDDC AEC ID Circ. C-8

PB 95422

Solomon, A. K.

Health-protection in handling radioisotopes. Jan 1947. 6p Mi $1.25 Ph $1.25

1. Radioactivity—Protection 2. Atomic power—Research 3. MDDC AEC ID Circ. B-2

PB 96448

Stearner, S. P. and others.

Effects of total body X irradiation on the peripheral blood and blood forming tissues of the rat. Apr 1947. 42p photos, graphs, tables (Limited supply mimeo $.20) (Also abailable from U. S. Aromic Energy Commission, Oak Ridge, Tenn. Mimeo: $.20)

Following exposure to single doses of 300 r and 600 r, a maximum anemia developed after 14-16 days. Recovery was complete at 30 days following 300 r, but a significant difference persisted until 94 days between control animals and those exposed to 600 r. Histological study of the bone marrow after exposure to 600 r revealed a completely aplastic condition for 7-9 days following irradiation, but by 14 days a hyperplastic condition was present. The relatively long life of the red cell (20-30 days) may explain the delayed appearance of the effects of irradiation on the circulating erythrocytes. A macrocytic anemia was demonstrated by the presence of an increased mean corpuscular volume and mean erythrocyte diameter. The white blood elements showed a maximum depression three days after X irradiation. Recovery began 10 days after exposure to 300 r and 600 r, and was essentially complete at 30 days. After 25 r there was a very small decrease in number of circulating leucocytes and recovery was complete by 14 days. Exposure to 300 r and 600 r produced drastic effects on heterophils as well as lymphocytes. Damage was seen in the lynphatic tissue as early as 1/2 hour following 600 r X irradiation. The completely aplastic condition, present at two days, persisted until about the ninth day, at which time regeneration began. This corresponds to the first increase in number of circulating cells. A large amount of regenerating lymphatic tissue was present two weeks following irradiation, and active nodules were seen. At 35 days, regeneration was complete but it appeared that, compared with the controls, fewer cells were present per unit area. The time of degeneration and regeneration of granulopoietic tissue corresponded closely to the decrease and increase in number of circulating cells. The relation between the number of leucocytes in the circulating blood and the condition of the tissue in which they are formed indicate a short life span for these cells. This is in accord with previous estimates. Exposure to daily X-ray doses of 33.5 r resulted in a total of 3080 r and a maximum survival of three months. This dose rate produced only a slight depression in hemoglobin and erythrocyte values and a small decrease in number of circulating heterophils. However, lymphocytes were reduced after one week of treatment and fell continually until the death of the animals. A dose rate of 7.7 r per day was not shown to shorten the life span of the rats and had a doubtful effect on the circulating erythrocytes. The number of circulating heterophils was not decreased, but lymphocytes were reduced after one month of daily exposure and remained at a low level. Exposure to 7.7 4 for over 8 months could not be shown to have produced any change in the blood forming organs. A comparison of the effects of X irradiation on the peripheral blood of rats and rabbits showed that the pattern of response was very similar in the two species and that only minor differences were present. The response of the peripheral blood cells to daily doses of X rays indicated that the effects upon lymphopoietic tissue were much greater than upon the elements formed in the bone marrow (heterophils and erythrocytes). MDDC 1319

PB 95425

Turner, Richard B.

Radioactive testosterene containing C 14 in ring A. Jul 1947. 4p diagr Mi $1.25 Ph $1.25

1. Cancer—Therapy 2. Testosterene—Production 3. Atomic power—Research 4. MDDC AEC ID Circ. C-5

PB 95820

U. S. 5250th Technical Intelligence Co., Medical Analysis Section, Tokyo.

Haisung. (Injection of pine tree enzymes). Jul 1946. 6p photos Mi $1.25 Ph $1.25

1. Haisung (Trade name)—Japan 2. Cancer—Therapy—Japan 3. Enzymes—Therapeutic use—Japan 4. ATIC-T MAS-247

PB 95825

U. S. 5250th Technical Intelligence Co., Medical Analysis Section, Tokyo.

Japanese veterinary drugs and medicines. May 1946. 16p photos Mi $1.75 Ph $2.50

1. Medicine, Veterinary—Japan 2. ATIC-T MAS-217

PB 95821

U. S. 5250th Technical Intelligence Co., Medical Analysis Section, Tokyo.

P-O-U. (Injection of umbilical cord). Jul 1946. 8p photos Mi $1.25 Ph $1.25

1. P-O-U. (Trade name)—Japan 2. Cancer—Therapy—Japan 3. ATIC-T MAS-245

PB 95823

U. S. 5250th Technical Intelligence Co., Medical Analysis Section, Tokyo.

Thymophogen. (Sodium 4-chlorthymol-phosphate). May 1946. 12p photo Mi $1.75 Ph $2.50

1. Thymophogen (Trade name)—Japan 2. Tuberculosis—Therapy—Japan 3. ATIC-T MAS-230

PB 95824

U. S. 5250th Technical Intelligence Co., Medical Analysis Section, Tokyo.

Unit, mobile surgical. Apr 1946. 38p illus, drawings Mi $2.25 Ph $5.00

1. Medicine, Military—Japan 2. ATIC-T MAS-216

PB 95272

U. S. War Dept.

Mobilization training program for army nurses, medical department dietitians and physical therapists. Jun 1945. 23p tables Mi $2.00 Ph $3.75

1. Nurses and nursing— Training 2. Physical therapy—Training 3. Dietitians—Training 4. WD MTP 8-7

PB 96363

Volhard, Franz

Arterial hypertension. Jan 1949. 165p graphs, tables (Text in German) Mi $6.25 Ph $21.25 Mimeo: $4.25

Title page and Contents in English

This report may not reproduce well

1. Blood pressure, High—Germany 2. FIAT FR 1269

METALS AND METAL PRODUCTS

PB 95578

Aachen, Ger. Technische Hochschule.

Research into the machinability of steel. 1930-1940. 209f (Text in German and English) Mi $7.50 Enl Pr $27.50

See PB 95578s for abstracts. 2p. Mi $1.25 Ph $1.25

1. Steel—Machinability—Germany 2. Micro BIOS FD 4190/47, Frames 1-208

PB 61911t

Beerwald, A.

The chromium plating of aluminum, silumin and duralumin W. Dec 1939. 11p illus, diagrs Mi $1.75 Ph $2.50

Translation of PB 61911

Legends in German

The chromium electro-plating of aluminum, silumin and duralumin W is thoroughly studied, and the reason for the difficulties met with in the chromium plating of duralumin W determined. A method is suggested of eliminating these difficulties. ZWB FB 1141/1, translation

PB 96348

Bjursten, Göran.

Normer och forskning i USA rörande spikförband. (Standards and research in the United States concerning nail fastenings). 1947. 42p diagrs, graphs, tables (Text in Swedish or English) Mi $2.50 Ph $6.25

1. Nails—Manufacture—Sweden 2. Svenska, Statens Kommitte för Byggnadsforskning Institutet, Rapport 2

PB 96058

Bollenrath (Herr) and Bungardt (Herr)

Untersuchungen über die tropenbestandigkeit verschiedener aluminium-zink-magnesium-legierungen. (Investigations into the resistance properties of some Al-Zn-Mg-alloys in tropical service). Sep 1943. 60p illus, tables Mi $2.75 Ph $7.50

Legends in German

1. Gt. Brit. Ministry of Supply 2. Alloys, Corrosion resisting—Tests, Tropical—Germany 3. Aluminium-zinc-magnesium in alloys—Tests, Tropical—Germany 4. ZWB UM 1072, translation 5. Micro GDC 10/5680T, translation.

PB 95278

Commission d'Ingenieurs des Traitements Thermiques. Centre-midi.

Constraintes et deformations au cours des traitements thermiques. (Constraints and deformations in the course of heat treatments). Oct 1947. 2p (Text in French) Mi $1.25 Ph $1.25

1. Steel—Heat treatment—France

PB 96046

Daimler-Benz A. G., Unterturkheim, Ger.

Radiax bearings with bronze cages (series) with outer adjustment at approximately 2/100 mm. clearance. Jul 1940. 7p graph, table Mi $1.25 Ph $1.25

The advantage of a very close outer adjustment on Radiax bearings 6305 (small radial play of approx. 20μ) is slight. The rate of wear amounted to approx. 25-45μ per 100 hours of running with new bearings and thereafter 5-15μ for every subsequent 100 hours. These experiments confirm the use of approx. 200μ play in used reconditioned bearings according to regulation KG. 109. Micro GDC 11/126T, translation

PB 95244

Deutsche Gold- und Silberscheideanstalt, Rheinfelden, Ger.

Manufacture of cast magnesium. 1945. 3f (Text in French) Mi $1.25 Enl Pr $2.50

See PB 95244s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Magnesium—Casting—Germany 2. Micro BIOS FD 1669/48, Frames 418-419

PB 96255

Dix, E. H., Jr. and others.

Part ". Supplies of manganese. Part B. Mechanical properties. 1933. 37p graphs, tables Mi $2.25 Ph $5.00

1. Manganese—Production—Germany 2.Manganese—Properties—Germany 3. BIOS HEC 13032A 4. BIOS HEC 13032B

PB 77803t

Gt. Brit. Ministry of Supply.

Dauerstandversuche an stahlen mit verschiedener vorbehandlung. (Creep strength tests on steels with varied preliminary treatment). Apr 1944. 41p photos, diagrs, tables Mi $2.50 Ph $6.25

Translation of PB 77803

Legends in German

Parts of this report may not reproduce well

Most materials have been so treated as to confer upon them favorable qualities for room temperatures. Materials that are to be employed in other temperature regions must be tested in these as well, it being borne in mind that the preliminary treatment suitable for 20° often differs from that better adqpted for the temperature in question. When materials are to be employed in temperature ranges for which no experience has been had for that particular material, it is especially important to determine whether the strength qualities in the employment range may be improved by a different treatment. For this reason the series of tests described below were made on various steels at 500° in order to contribute to the clarification of the influence of the preliminary treatment on resistance to deformation and separation under heat. In almost all the materials examined an improvement over the delivered condition could be obtained by means of annealing. ZWB FD 1956/1, translation

PB 96288

Guethoffnungshütte. Oberhausen A.G. Mitteilungen.

(Gutehoffnungshütte Oberhausen A. G. reports). v. 7, Nos. 1-10. Jan-Dec 1939. v. 8, Nos. 1-10. Jan-Dec 1940. v. 9, Nos. 1-10. Jan 1941-Dec 1942. v. 10, Nos. 1-2. 1943. 415f (Text in German) Mi $9.00 Enl Pr $53.75

1. Metallurgy—Periodicals—Germany 2. Mechanical engineering—Periodicals—Germany 3. Micro FIAT 0 84, Frames 401-813

PB 96256

Hagedorn, Leo.

Calculating coupling gears, 1st part. n.d. 183p drawings, graphs Mi $6.75 Ph $23.75

1. Gears, Coupling—Germany 2. Aachon. Technische Hochschule 3. BIOS HEC 10216

PB 85010

Hansen, Max and others.

General metallurgy. 1948. 326p (Text in German) Mi $9.00 Ph $37.50 Mimeo: $3.00

1. Metallurgy—Germany 2. U.S. Field Information Agency, Technical

PB 85011

Hanson, Max and others.

Non-ferrous metallurgy. Part II. 1948. 171p (Text in German) Mi $6.50 Ph $22.50 Mimeo: $3.00

For Part I see PB 95679

1. Metallurgy, Non-ferrous 2. U. S. Field Information Agency, Technical

PB 96112

Hofmann, W.

The stress resistance of light alloys at low temperatures. Dec 1944. 25p photos, graphs, diagrs, tables Mi $2.00 Ph $3.75

Legends in German

Evaluation of literature on the subject. Influence of crystallization form on mechanical properties of the technically important alloys at low temperatures. Description of an arrangement for producing low temperatures in mechanical strength tests, particularly fatigue tests. Execution of tensile and fatigue tests at room temperature and different low temperatures, on pure aluminum, Al—Mg—3 and Al—Mg—Mn. ZWBFB 2024, trans.

PB 96241

Helling, Werner.

Development of the triple layer-electrolysis with special consideration to the refining of aluminium scraps. n.d. 22p tables Mi $2.00 Ph $3.75

1. Aluminum alloys—Electrolytic production—Germany 2. Electrolysis—Germany 3. BIOS HEC 11915

PB 96647

Hughes, J. W. and Ross, H. J.

German metal degreasing practice. 1947. 34p drawings Mi $2.25 Ph $5.00

1. Degreasing—Germany 2. BIOS FR 1814, Item 22

PB 95283

Institut de Recherches de la Sidèrurgie.

Rapport annuel, annee 1947. 1948. 18p (Text in French) Mi $1.75 Ph $2.50

1. Iron and steel industry—France

PB 95281

Institut de Recherches de la Sidèrurgie.

Rapport sur le voyage effectué en Angleterre du 11 au 17 Mai 1947. 1947. 29p drawings, tables

(Text in French) Mi $2.00 Ph $3.75

1. Steel—Heat treatment—Gt. Brit. 2. Iron and steel institute—Gt. Brit.

PB 95282

Institute de Recherches de la Sidèrurgie.

Rapport sur le voyage effectué en Angleterre du 22 au 26 Octobre 1947. 1948. 10p drawings (Text in French) Mi $1.25 Ph $1.25

1. Laboratories—Metallurgical—Gt. Brit. 2. Iron and steel industry 3. British Iron and steel research assn. London

PB 95284

Institut de Recherches de la Sidèrurgie.

Rapport sur le voyage en Tchecoslovaquie du 25 Septembre au 1st Octobre 1947. 1948. 8p (Text in French) Mi $1.25 Ph $1.25

1. Iron and steel industry—France 2. Tempering—France 3. Iron works 4. Foundries

PB 93017

Kaiser Wilhelm Institut für Eisenforschung, Clausthal, Ger.

Behavior of flexible shafts. May 1943. 4f (Text in German) Mi $1.25 Enl Pr $2.50

No abstract available

1. Shafts, Flexible—Germany 2. Micro BIOS FD 698/48, Frames 1-4

PB 95588

Kaiser-Wilhelm Institut für Eisenforschung, Düsseldorf, Ger.

Report on large scale trials with magnetising roasting of ferruginous sandstone and other iron ores. 1947. 7f (Text in German) Mi $1.25 Enl Pr $2.50

See PB 95588s for abstracts. 2p. Mi $1.25 Ph $1.25

1. Iron ores—Magnetic roasting—Germany 2. Micro BIOS FD 1222/48, Frames 1-6

PB 95847

Korrosion und metallschutz. (Corrosion and metal protection). v. 15, Nos. 6-12, suppl. no. 2. 1939. v. 16, Nos. 3-12. 1940. v. 17, Nos. 1-12. 1941. 473f (Text in German) Mi $9.00 Enl Pr $61.25

1. Corrosion—Periodicals—Germany 2. Metals—Periodicals—Germany 3. Micro FIAT O 72, Frames 3796-4269

PB 95964

Korrosion und metallschutz. v. 18, Nos. 1-12. 1942. v. 19, Nos. 1-12. 1943. v. 20, Nos. 1-3. 1944. 626f (Text in German) Mi $9.00 Enl Pr $81.25

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1. Corrosion—Periodicals—Germany 2. Metals—Periodicals—Germany 3. Micro FIAT O 73, Frames 4270-4896

—62231

PB 96253

Liebegott, G.

Explanatory supplement to code for pressure vessels in pure aluminum. n.d. 46p drawings, graphs Mi $2.50 Ph $6.25

1. Aluminum—Tensile tests—Germany 2. Shipbuilding—Materials—Germany 3. Ships—Aluminium 4. BIOS HEC 13498

PB 96438

Meister, George

Production of rarer metals. n.d. 11p diagrs, drawings, tables (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

1. Thorium—Production 2. Zirconium—Production 3. Uranium—Production 4. Atomic power—Research 5. MDDC 1673

PB 96342

Norrefeldt, Eric

Tyska normer och tysk forskning rörande spikförband. (German standards and German studies concerning nail fasteners). 1945. 40p (Text in Swedish) Mi $2.25 Ph $5.00

1. Nails—Manufacture—Germany 2. Svenska. Statens Kommitté för Byggnadsforskning Institutet. Rapport 3

PB 95550

Rowe, P. N. and Gurney, C.

Tearing experiments on metal sheets. Feb 1945. 6p illus, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.55

As combat damage to aircraft frequently involves tearing of metal sheet, it is of interest to compare the tearing resistance of different metals. The load to tear a tongue from metal sheets has therefore been measured. For a given material the tearing resistance was found to be proportional to the sheet thickness squared. Of the materials tested, mild steel has the highest tearing resistance, which about six times that of a magnesium rich alloy being had the least tearing resistance. ARC RM 2282

PB 96258

Staeblein, F.

Thermoperm, material with permeability varying with temperature. n.d. 9p drawing, graphs Mi $1.25 Ph $1.25

1. Instruments, Measuring—Magnetic—Germany 2. Thermal measurements—Germany 3. Thermoperm (alloy) 4. BIOS HEC 13033

PB 96276

Stahl und eisen. (Steel and Iron). v. 62, Nos. 34-52. Aug-Dec 1942. v. 63, Nos. 1-52. Jan-Dec 1943. v. 64, Nos. 1-13. Jan-Mar 1944. 871f (Text in German) Mi $9.00 Enl Pr $113.75

I. Steel—Periodicals—Germany 2. Iron—Periodicals—Germany 3. Micro FIAT E 67, Frames 6724-7567

PB 95589

Studiengesellschaft Hartmetall, Berlin, Ger.
Reports on etching agents for hard metal alloys. 1939-1944. 17f (Text in German) Mi $1.75 Enl Pr $3.75
See PB 95589s for abstracts. 2p. Mi $1.25 Ph $1.25
I. Etching—Germany 2. Micro BIOS FD 3949/47, Frames 1-16 3. Micro BIOS DOC 2012/2984, Frames 1-16

PB 95250

Technische Hochschule, Berlin.
Härterei-Technische Mitteilungen. (Technical reports on the hardening of metals). Nov 1941. 426f (Text in German) Mi $9.00 Enl Pr $56.25
No abstract available
I. Metals—Hardening—Germany 2. Micro BIOS FD 1597/48, Frames 1-425

PB 36510t

Thum, A. and Weiss, H.
Torsional fatigue tests on crankshaft steels. Aug 1938. 27p illus, diagrs Mi $2.00 Ph $3.75
Translation of PB 36510
Legends in German
Torsional fatigue tests on smooth shafts, transversely drilled solid and hollow shafts, of 12, 30 and 60 m.m. diameter of one high-nickel and one low-nickel steel, each in two annealing conditions. Influence of punch-pressure in the transverse holes, on the torsional fatigue endurance of such shafts. ZWB FB 966, translation

PB 25910r

U. S. Aeronautical Board.
Bearing—extra light duty ball. Dec 1948. 1p drawing Mi $1.25 Ph $1.25
Revision 1 of PB 25910
I. AN 202

PB 25908r

U. S. Aeronautical Board.
Bearing-heavy duty ball. Dec 1948. 1p drawing Mi $1.25 Ph $1.25
Revision 1 of PB 25908
I. AN 200

PB 25914r

U. S. Aeronautical Board.
Bearing—heavy duty double row ball. Dec 1948. 1p drawing Mi $1.25 Ph $1.25
Revision of PB 25914
I. AN 207

—62231

PB 25913r

U. S. Aeronautical Board.
Bearing—heavy duty double row ball (self aligning). Dec 1948. 1p drawing Mi $1.25 Ph $1.25
Revision of PB 25913
I. AN 206

PB 25909r

U. S. Aeronautical Board.
Bearing-intermediate duty ball. Dec 1948. 1p drawing Mi $1.25 Ph $1.25
Revision 1 of PB 25909
I. AN 201

PB 25951r2

U. S. Aeronautical Board.
Rivet-round head (steel, monel and copper). Sep, Dec 1948. 1p drawing Mi $1.25 Ph $1.25
Revision 2 of PB 25951
I. AN 435

PB 25907f5

U. S. Air Force and U. S. Navy Dept.
Eye: Turnbuckle (for cable). Air Force-Navy aeronautical standard. Nov 1948. 1p drawings, tables Mi $1.25 Ph $1.25
Revision 5 of PB 25907
I. AN 170-5

PB 25931r2

U. S. Air Force and U. S. Navy Dept.
Joint: Universal (light duty). Air Force-Navy aeronautical standard. Oct 1948. 1p drawings, table Mi $1.25 Ph $1.25
Revision 2 of PB 25931
I. AN 270-2

PB 43115r2

U. S. Air Force and U. S. Navy Dept.
Plug: Countersunk HEX head pipe. Air Force-Navy aeronautical standard. Sep 1948. 1p drawings, table Mi $1.25 Ph $1.25
I. AN 932-2

PB 25949r

U. S. Air Force and U. S. Navy Dept.
Rivet: 100° countersunk head (Steel, Monel and copper). Air Force-Navy aeronautical standard. Sep 1948. 1p drawings, tables Mi $1.25 Ph $1.25
I. AN 427-1

PB 94709

U. S. Air Force and U. S. Navy Dept.
Screw: Installation and limitations for usage of self-tapping. Air Force-Navy aeronautical design standard. Sep 1948. 1p Mi $1.25 Ph $1.25

1. Screws, Self-tapping 2. AND 10087 3. AN 504 4. AN 506 5. An 530 6. AN 531

PB 96254

Zirm (Herr)

Manufacture of seamless tubes from air refined substitute steel. Dec 1948. 47p graphs, tables Mi $2.50 Ph $6.25

1. Steel—Deformation—Germany 2. Steel, Killed—Germany 3. Steel, Rimmed—Germany 4. Steel alloys—Strength—Germany 5. Tubes—Stresses—Germany 6. Tubes, Steel—Tests—Germany 7. Mannesmann Rohrenwerke, Huckingen, Ger. 8. BIOS HEC 11934

MINERALS AND MINERAL PRODUCTS, INCLUDING STONE, CLAY AND GLASS

PB 96270

Hawkins, L. G.

Production data on Rheinisches-Westphalisches Kohlensyndikat, 1943-1944. Aug 1945. 8p tables Mi $1.25 Ph $1.25

1. U. S. Group Control Agency 2. U. S. Field Information Agency 3. Coal—Production data—Germany 4. FIAT EF/FP/1

PB 96273

Keramische rundschau. (Ceramic review). v. 48, Nos. 1-52. Jan-Dec 1940. v. 49, Nos. 1-22. Jan-May 1941. 593f (Text in German) Mi $9.00 Enl Pr $77.50

1. Ceramics—Periodicals—Germany 2. Micro FIAT O 66, Frames 37-617

PB 96130

Krumholz, H.

Pressure resistance of stiffened duralumin shells. Dec 1944. 16p diagrs Mi $1.75 Ph $2.50

Legends in German

To determine the breaking stress of Duralumin shells stiffened by open profiled, a method of calculation has been set forth and summarized in a diagram. The procedure is based numerically on breaking experiments carried out at Focke Wulfs. ZWB UM 8012, translation

PB 96350

Odenstad, Sten

Belastningsförsök pa lera. (Loading tests on clay. Practical theoretical studies). 1947. 21p photo, diagrs (Text in Swedish) Mi $2.00 Ph $3.75

1. Clay—Tests—Sweden 2. Svenska. Statens Kommitté för Byggnadsforskning Meddelanden 14

PB 96350t

Odenstad, Sten

Belastningsförsök pa lera. (Loading tests on clay). 1947. 9p diagrs Mi $1.25 Ph $1.25

Translation of PB 96350

1. Svenska. Statens Kommitteé för Byggnadsforskning Meddelanden 14

PB 95869

Svenska Forskningsinstitutet för cement och Betong vid Kungl. Tekniska Högskolan i Stockholm.

Cement-och betonginstitutets verksamhet under tiden 1 Juli 1946-30 Juni 1947. (Report of the Director). 1948. 50 p illus, graphs (Text in Swedish) Mi $2.50 Ph $6.25

1. Cement—Research—Sweden 2. Concrete—Research—Sweden

PB 93015

Titze, H.

High velocity ball penetration tests. May 1945. 14f Mi $1.75 Enl Pr $3.75

No abstract available

Translation of a report from the Kaiser Wilhelm Institut für Eisenforschung, Clausthal, prepared by F. H. Gottfeld, Armament Research Dept. Ministry of Supply

1. Armor plate—Tests—Germany 2. Projectiles—Penetration—Armor—Germany 3. Micro BIOS FD 695/48, Frames 1-14

PB 95851

Tonindustrie zeitung. (Clay industry journal). v. 63, Nos. 1-95. Jan-Dec 1939. 588f (Text in German) Mi $9.00 Enl Pr $76.25

1. Clay—Periodicals—Germany 2. Micro FIAT E 78, Frames 4108-4696

PB 96652

U. S. Tennessee Valley Authority.

Concrete production and control. Technical report number 21. 1947. 350p photos, maps, charts, drawings, diagrs, tables Available from Treasurer, Tennessee Valley Authority, Knoxville, Tenn. $1.50

1. Concrete—Construction—United States 2. Cement—United States

PB 90955

Westfälisch-Anhaltische Sprengstoff A. G., Berlin

Products used in the composition of explosives. 1938-1939. 68f (Text in German) Mi $3.00 Enl Pr $10.00

See PB 90955s for abstracts. 2p Mi $1.25 Ph $1.25

1. Explosives—Composition—Germany 2. Micro BIOS FD 1823/46, Frames 1-67

PB 95643

Wilkins, E. T.

The electrostatic cleaning of coal at Osterfeld Colliery. n.d. 12p Mi $1.75 Ph $2.50

1. Coal—Dry cleaning—Germany 2. BIOS FR 1036, Item 30

PB 96586

Wilkinson, H. and others.
German laboratory procelain industry. n.d. 20p Mi $1.75 Ph $2.50
I. Porcelain industry—Germany 2. BIOS FR 1792, Item 22

PB 95997

Zement. (Cement). v. 29, Nos. 42-52. Oct-Dec 1940. v. 30, Nos. 1-52. Jan-Dec 1941. v. 31, Nos. 1-14. Jan-Apr 1942. 613f (Text in German) Mi $9.00 Enl Pr $80.00
I. Cement—Periodicals—Germany 2. Micro FIAT K 81, Frames 4301-4914

ORDNANCE AND ACCESSORIES

PB 96248

British Intelligence Objectives Sub-Committee Halstead Exploiting Centre.
Quality and output bonus on pressing plants in Dyanmit A. G. Forde Factory. Dec 1944. 12p graphs, tables Mi $1.75 Ph $2.50
I. BIOS HEC 10256

PB 96249

British Intelligence Objectives Sub-Committee. Halstead Exploiting Centre.
Service instructions for the use of the machine to measure cartridge cases: Model 514 H. n.d. 8p tables Mi $1.25 Ph $1.25
I. Cartridges—Cases—Measuring machine—Germany 2. BIOS HEC 10225

PB 96251

Brunne (Herr)
Soldering solution tests and lignine for the production of propellant. Jul 1944. 32p graphs Mi $2.25 Ph $5.00
I. Lignin—Uses—Germany 2. Propellants—Analysis—Germany 3. Soldering—Solutions—Germany 4. BIOS HEC 3592/10/1

PB 96074

Fricke, A.
Vorhaltetheorie für bewegliche flugzeugschusswaffen. (A theory of deflection for aircraft free guns). Jun 1944. 68p diagrs, tables Mi $3.00 Ph $8.75
Legends in German
I. Gt. Brit. Ministry of Supply 2. Gunnery, Aerial— Trajectory determination—Germany 3. Gunnery, Aerial—Mathematical computation—Germany 4. Targets—Gunnery—Germany 5. ZWB UM 777, translation 6. Micro GDC 10/5635T, translation

PB 96246

Grumbt, A.
Means for obtaining maximal jet velocities. Jan 1946. 18p graphs, tables Mi $1.75 Ph $2.50
I. Rockets—Propellants—Jet Characteristics—Germany 2. BIOS HEC 10686

PB 96187

Winkler, J.
Zusammengesetste Raketen. (Composite rockets). Jan 1947. 23p diagrs Mi $2.00 Ph $3.75
Legends in German
Parts of this report may not reproduce well
The report shows that simple rockets have a limited range of only approximately 500 km. This limiting range can however be increased considerably by the use of compound rockets, though this assumes from the outset very large rockets, and it is not possible to foresee whether such rockets are in fact practically realizable. This report therefore will commence with a discussion of realized or at all events realizable rockets of medium size which laboratory investigations have shown to be possible and of power units which can be compounded from a great number of similar rockets. From this is found, for the assessment of rockets, a characteristic value from which also can be obtained ideas for suitable types of rocket constructions. A table is appended in which have been collated a number of different types of rockets which have already been produced and for these the characteristic values are given. Finally the construction of a rocket motor to give extremely high total output is discussed. Micro GDC 264T, translation

PERSONNEL APTITUDE TESTING AND JOB TRAINING

PB 96260

Hawkins, L. G., Jr.
Statistics on German manpower during 1939-1944. Jul 1945. 9p tables Mi $1.25 Ph $1.25
I. Labor supply—Germany 2. U. S. Field information Agency, Technical 3. U. S. Group Control Council 4. FIAT IR EF/LM/1

PB 96022

REFA-Mappe
(National committee for time studies-folder). 1942.
Simoneit, Max
Grundriss der charakterologischen diagnostik. (Outline of characterological diagnostics). 1943.
Hupfauer, Th.
Mensch-betrieb-leistung. (Man-industry-efficiency). 1943.
Moede, Walter
Eignungsprüfung und arbeitseinsatz. (Aptitude tests and work assignment). 1943.
Arbeitsschulung. (Vocational training). v. 1, Nos. 1-5. Oct 1929-Oct 1930. v. 2, Nos. 1-4. Jan-Oct 1931. v. 3, Nos. 1-4. Jan-Oct 1932. v. 4, Nos. 1-4. Jan-Oct 1933. v. 5, No. 1. Jan 1934. 810f (Text in German) Mi $9.00 Enl Pr $105.00
I. Time study—Germany--2. Psychology—Germany 3. Efficiency, Industrial—Germany 4. Ability

tests—Germany 5. Vocational education—Periodicals—Germany 6. Micro FIAT K 100, Frames 9050-9839

PB 47174r

U. S. Air Force.
Set: training, intelligence staff officer. Jul 1948. 3p tables Mi $1.25 Ph $1.25
I. AAF TO 00-30-806-1

PB 47177r

U. S. Air Force.
Set: Training, military management, staff officers. Jul 1948. 1p table Mi $1.25 Ph $1.25
I. AAF TO 00-30-809-1

PB 85313

U. S. Army Air Forces.
Set: Training, individual, draftsman. May 1947. 1p table Mi $1.25 Ph $1.25
I. Draftsman—Training equipment 2. AAF TO 00-30-1081

PB 85314

U. S. Army Air Forces.
Set: Training, individual, draftsman, topographic. May 1947. 2p table Mi $1.25 Ph $1.25
I. Draftsman, Topographic—Training equipment 2. AAF TO 00-30-1082

PB 85315

U. S. Army Air Forces.
Set: Training, individual, electrician. May 1947. 6p tables Mi $1.25 Ph $1.25
I. Electricians—Training equipment 2. AAF TO 00-30-1083

PB 85316

U. S. Army Air Forces.
Set: Training, individual, engineman, operating. May 1947. 2p table Mi $1.25 Ph $1.25
I. Engineers, Aeronautical—Training 2. AAF TO 00-30-1084

PB 85317

U. S. Army Air Forces.
Set: Training, individual, operator, crane. May 1947. 2p tables Mi $1.25 Ph $1.25
I. Cranes—Operators—Training equipment 2. AAF TO 00-30-1092

PHOTOGRAPHIC AND OPTICAL GOODS

PB 70386s

Askania Werke A. G., Berlin.
Arrangement for switching on and operating cine-cameras at pre-determined intervals. Abstracts. 1940. 2p Mi $1.25 Ph $1.25
Supplement 1 to PB 70386
I. Micro FIAT J 220, Frames 1-4, abstracts 2. Micro BIOS FDX 195, abstracts

PB 96392

Clemens, V. T. and Brar, S. S.
Exposure meter for photomicrography. May 1948. 5p photos, drawing, table (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)
Development of a device for measuring the intensity of illumination with a light sensitive tube; circuit components listed; operational techniques discussed. AECD 2271

PB 95929

Fotografische rundschau. (Photography magazine). v. 78, Nos. 1-24. 1941. v. 79, Nos. 1-12. 1942. v. 80, Nos. 1-3. 1943.
Physikalische zeitschrift. (Physics journal). v. 40, Nos. 1-16. 1939. 756f (Text in German) Mi $9.00 Enl Pr $97.50
I. Photography—Periodicals—Germany 2. Micro FIAT E 133, Frames 2557-3313

PB 96494

Kacirek, J. P. F.
A simple method of correcting parallax heights for tilt errors, and its application of heighting with limited control. Sep 1945. 19p diagrs, tables (fold tables) (Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.55)
I. Photography, Aerial—Research—Gt. Brit. 2. S. O. 57-603-17

PB 82211t3

Mohorko, J. K.
Color film camera with three identical objectives. Dec 1948. 6p drawings Available from Research Information Service, 509 Fifth Ave., N. Y. 17, N. Y. at $8.00
Translation 3 of PB 82211
I. Films (Photography), Color—Germany 2. Micro FIAT G 51, Frames 8112-8115, trans.

PB 95947

Photographische industrie. (The photography industry). v. 31, 1941. 387f (Text in German) Mi $9.00 Enl Pr $50.00
I. Photography—Periodicals—Germany 2. Micro FIAT O 92, Frames 5194-5581

PB 95933

Die photographische industrie. (Photographic industry), v. 38, Nos. 1-52. 1940. 390f (Text in German) Mi $9.00 Enl Pr $51.25
I. Photography—Periodicals—Germany 2. Micro FIAT O 91, Frames 4804-5193

PB 96165

Sonnefeld, A. and others.

Verzeichnung bei optischen Instrumenten. (Papers on distortion in optical instruments). n.d. 37p diagrs, table MI $2.25 Ph $5.00

Legends in German

1. Gt. Brit. Ministry of Supply 2. Instruments, Optical—Germany 3. Lenses, Optical—Germany 4. Micro GDC 3A/39T, translation

PB 96649

U. S. Army Air Forces and U. S. Bureau of Aeronautics.

Handbook of instructions with parts catalog for gun cameras, types AN-M-4, AN-M-4A, AN-N-4, AN-M-4A, AN-N-4A, AN-N-6A, Mark 8 Mod. 0. Jun 1945. 114p photos, diagrs MI $4.75 Ph $15.00

1. Cameras, Gun AN-M-4 2. Cameras, Gun AN-M-4A 3. Cameras, Gun AN-N-4 4. Cameras, Gun AN-N-4A 5. Cameras, Gun AN-N-6A 6. Cameras, Gun Model 8, Model 0 7. AN 10-10C-4

PHYSICS

General

PB 96049

Benecke, T.

Investigation of the Michel infra red image converter. n.d. 5p photos, drawing, graph MI $1.25 Ph $1.25

After giving a short description of the present day methods of converting infra red pictures into visual ones, details are given of the design and principles of operation of the Michel infra red image converter. Results of experiments on the spectral and absolute sensitivity of response and also on the lag and resolving power of the infra red image converter, are given. The possibilities of the various applications to which such image converters may be put are based on these results. ZWB RR 721, translation

PB 96041

Brauer, P.

Sensitized phosphors, Part IV. Investigations of the spectral distribution of the luminescence effect on phosphors sensitized to infra-red. May 1943. 10p MI $1.25 Ph $1.25

Measurements are made of the infra-red spectral region with luminescent effect of some sensitized phosphors at different temperatures and the results compared with the conditions obtaining with non-sensitized phosphors which are likewise determined. ZWB FB 1695/4, translation

PB 96339

Brüel, Per

Akustiska mätmetoder. (Methods of acoustic measurement). 1947. 18p diagrs (Text in Swedish) MI $1.75 Ph $2.50

Summary in English

Svenska. Statens Kommitté för Byggnadsforskning Institutet. Meddelanden 9

The acoustical definitions and measurement methods described have lately been used at the Acoustics Laboratory at Chalmers University of Technology and the present publication is an attempt to get these definitions and measurements introduced into Sweden as a standard. Technical information about sound are given in Kungliga Byggnadsstyrelsens: Anvisningar till Byggnadsstadgan 1946: 1, published in January 1946; these are fully covered in this book. The measurement frequencies which should be used are given in table 1 and are determined from the International Standard figures. Definitions and measuring methods are given for sound spectrograms and sound intensity. Measurement of noise level is mainly done in phons according to the German standards, described in the German D. I. N. paper No. 5045. These standards are now widely used in Scandinavia. Definitions are given for the reverberation time, absorption, and absorption coefficients, together with notes on the precautions which must be taken with these measurements. For determining the absorption coefficient, the reverberation room method and the tube method are both described. Definitions and measurement methods are also given for the three important concepts: 1) The air-borne sound insulation. 2) the air-borne sound insulation figure and 3) the effective air-borne sound insulation. The air-borne sound insulation figure indicates the sound insulating qualities of the construction elements and both the definition and the measurement method are those commonly used in Scandinavia, Switzerland, the Netherlands and Germany. The effective air-borne sound insulation is, however, as entirely new concept which indicates the sound insulating qualities in a completed building independent of the paths taken by the sound from one room to another. For impact sound considerations, the impact sound insulating figure and the effective impact sound insulation, are given together with a definition of the impact sound figures. The latter is inversely proportional to the insulating qualities of the construction and has previously been used in Scandinavia and Germany to characterize the insulating capacity of floor partitions.

PB 96503

Fucks, Wilhelm

Uber die stille vorentladung in luft von atmospharendruck und ihre anemometrische verwendung. (On the dark initial leakage discharge in air of atmospheric pressure and its anemometric application). Feb 1944. 22p diagrs MI $2.00 Ph $3.75

Legends in German

Before a gas discharge during the increase in tension breaks down into discharge forms with sinking characteristics (glow discharge, arcs, sparks),

two kinds of "leakage discharge" with rising characteristics are possible, the Townsend discharge and the dark leakage discharge. From the physical point of view the latter represents a series connection of a glow discharge and a dependent dark-discharge in the gas section. It burns, too, without preionisation with currents that can be obtained by the Townsend discharge only with unusually strong preliminary ionisation. The application of the dark-discharge to the measurement of velocities of currents in gases and their fluctuations is studied in the present paper. The region in which the discharge exists, which is situated between the initial voltage U_a and the ignition voltage U_z in the glow discharge, is determined as a function of the essential parameters. The effect of a current of air on the section is determined by means of a photograph of an air flow velocity characteristic field, from which the anemometric sensitivity of the instrument is calculated. Micro GDC 10/5199t, translation

PB 95308

Odarenko, T. M.

German war-time developments in infrared: a review of reports and documents released by the United States government. Mar 1948. 55p illus, charts, diagrs Mimeo: $1.50

The review is based on the inspection and analysis of some 150 reports released by the U. S. Government on the war-time infrared activities in Germany and U. S. A. Though these reports represent only a part of the total amount of information on infrared war-time developments obtained in Germany, they cover all reports released by the National Security Agencies, and represent a sufficiently thorough coverage of the German developments and experience in infrared to give a very comprehensive picture of the infrared status in Germany. In spite of the fact that these developments were dictated primarily by the military considerations of the Germans during the last war, all of them have a high application value to the present industrial problems in the United States.

PB 95982

Physikalische berichte. (Physics abstracts). v. 20, Nos. 1-12. Jan-Jun 1939. 903f (Text in German) Ml $9.00 Enl Pr $117.50

1. Physics—Periodicals—Germany 2. Micro FIAT O 94, Frames 6297-7200

PB 95974

Physikalische berichte. (Physics reports). v. 21, Nos. 1-12. Jan-Jun 1940. 837f (Text in German) Ml $9.00 Enl Pr $108.75

1. Physics—Periodicals—Germany 2. Micro FIAT O 96, Frames 8070-8907

PB 95973

Physikalische berichte. (Physics reports). v. 21, Nos. 13-24. Jul-Dec 1940. 776f (Text in German) Ml $9.00 Enl Pr $101.25

1. Physics—Periodicals—Germany 2. Micro FIAT O 97, Frames 8908-9684

PB 95969

Physikalische berichte. (Physics reports). v. 22, Nos. 13-16. Jul-Aug 1941. Index 1941. 560f (Text in German) Ml $9.00 Enl Pr $72.50

1. Physics—Periodicals—Germany 2. Micro FIAT O 99, Frames 354-914A

PB 95923

Physikalische berichte (Physics reports). v. 23, nos. 3-12. Feb-Jun 1942. 534f (Text in German) Ml $9.00 Enl Pr $71.25

1. Physics—Periodicals—Germany 2. Micro FIAT O 101, Frames not numbered correctly

PB 95920

Physikalische zeitschrift. v. 40, Nos. 17-24. 1939. v. 41, Nos. 1-24. 1940. v. 42, Nos. 1-24. 1941. v. 43, Nos. 1-6. 1942. 722f (Text in German) Ml $9.00 Enl Pr $93.75

1. Physics—Periodicals—Germany 2. Micro FIAT E 134, Frames 3314-4035

PB 85012

Walther, Alwin and others.

Applied mathematics. Part III. (Mathematical foundations of fluid mechanics). 1948. 202p (Text in German) Ml $7.50 Ph $26.25 Mimeo: $3.00

1. Mathematics, Applied—Germany 2. Fluid mechanics—Germany 3. U. S. Field Information Agency, Technical

PB 85014

Rajewsky, Boris and Schon, Michael.

Biophysics, Part I. 1948. 257p (Text in German) Ml $9.00 Ph $32.50 Mimeo: $3.00

1. Biophysics—Germany 2. U. S. Field Information Agency, Technical

PB 96019

Zeitschrift für physik. (Journal for physics). v. 121, Nos. 1-12. 1943. v. 122, Nos. 1-12. 1944. v. 123, Nos. 1-2. 1944. 873f (Text in German) Ml $9.00 Enl Pr $113.75

1. Physics—Periodicals—Germany 2. Micro FIAT O 123, Frames 5896-6758

Nuclear

PB 96456

Agron, Paul A.

Thermodynamics of intermediate uranium fluorides from measurements of the disproportionation pressures. n.d. 14p drawing, graphs, table (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

The equilibrium disproportionation pressures of UF_6 over the following U-F compounds have been measured in the ranges indicated: α-UF_5 (100 to 200°C); β-UF_5 (100 to 152°C); U_2F_9 (225 to 320°C); and U_4F_{17} (270 to 350°C). In addition, the transition temperature and pressure of α- and β-UF_5 have been established at 125°C and 1.76 mm UF_6, respectively. From these measurements and previous thermodynamic data of UF_4 and UF_6, the heats of formation, entropies, and free energies of these intermediate compounds are calculated. AECD 1878

PB 96369

Arnold, G. and others.

Cross section and crystal orientation in extruded graphite (and aluminum). May 1947. 3p graphs (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

1. Graphite—Crystal structure 2. Aluminum—Crystal structure 3. Atomic power—Research 4. MDDC 1685

PB 96366

Ballou, N. E.

Considerations on the existence of element 61 in nature. Dec 1947. 3p (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo $.05)

1. Elements—Analysis 2. Atomic power—Research 3. MDDC 1627

PB 96458

Bernstein, S. and others.

Yield of photoneutrons from U^{235} fission products in Be. Feb 1948. 13p drawing, graphs, table (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

The yield of photoneutrons from a sample of 25 fission products at the center of a nine-inch diameter Be sphere has been studied. Samples of U^{235} were exposed in the pile for periods of 30 seconds, 15 minutes, 6 hours, and 74 hours. The photoneutrons were observed from 0.3 second to about 4 weeks after the end of the exposure. Curves showing the photoneutron yield relative to the delayed neutron yield as a function of time are given for these exposure and observation times. A comparison is made between the photoneutron yield of infinite thickness of D_2O and Be for a 6-hour exposure. This comparison shows that the yield from Be is less than that for D_2O for times less than about one-half hour after the end of the exposure, and that the yield from Be becomes increasingly greater than that for D_2O for times greater than one-half hour. A possible explanation of the relative yields of Be and D_2O with time in terms of the variations of the photodisintegration cross sections with energy and the average variation of fission product gamma-ray energy with time is proposed. AECD 1833

PB 95737

Bretscher, E. and others.

Low-energy yield of $D(D,p)H^3$ and the angular distribution of the emitted protons. Sep 1947. 12p diagrs, graphs, tables (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

1. Deuterons—Energy measurements 2. Protons—Measurements 3. Atomic power—Research 4. MDDC 1348

PB 96460

Carlson, J. Gordon and others.

Relative effectiveness of different intensities of gamma radiation in retarding mitosis in the grasshopper neuroblast. n.d. 4p (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

When the total dose administered was 8r of 32r, the effect on cell division resulting from treatment at an intensity of 32 r-per-minute was not significantly different from that resulting from treatment at 2r-per-minute. When the total dose was 128r, however, the 32r-per-minute intensity was considerably more effective in retarding mitosis than the 2r-per-minute intensity. MDDC 1576

PB 96442

Conklin, Richard L. and Ogle, William E.

Further evidence for a α-p process in Be^9. n. d. 6p graph, table (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

1. Beryllium—Analysis 2. Alpha rays—Counts 3. Atomic power—Research 4. MDDC 1398

PB 95731

Coon, J. H. and others.

Reaction He^3 (n,P) H^3 induced by thermal neutrons. n.d. 2p (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

The cross section was measured by counting the ionization pulses from the disintegration products; experimental procedures described; observed and calculated cross-section values given. AECD 2190

PB 95702

Cunningham, B. B. and others.

Transmutations with high energy deuterons and helium ions in the 184-inch cyclotron. Apr 1947. 2p (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

1. Helium—Energy measurements 2. Deuterons—Energy measurements 3. Cyclotrons 4. Atomic power—Research 5. MDDC 994

PB 95714

DeBenedetti, S. and McGowan, F. K.

Metastable state of around 10^6 seconds in Re^{187}. n.d. 2p drawing, graph (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

1. Rhenium 2. Atomic power—Research 3. MDDC 1115

PB 96487

Dempster, A. J.

Mass spectrograph in chemical analysis. n.d. 6p diagrs, table MI $1.25 Ph $1.25

1. Mass spectrographs 2. Atomic power—Research 3. MDDC 370

PB 96446

Ghiorso, A. and others.

Alpha-particle energy of Ac^{227}. Jul 1948. 2p (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

1. Actinium—Radioactivity 2. Alpha rays—Measurements 3. Atomic power—Research 4. AECD 2232

PB 95729

Goldberger, Marvin L.

Note on zero-zero transitions. Jul 1947. 3p graphs, table (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

1. Nuclear reactions 2. Zero-zero transitions (Nuclear reactions) 3. Atomic power—Research 4. MDDC 1298

PB 96374

Heckrotte, W. and Wolff, Peter.

Excitation function of the reaction $C^{12}(p,pn)C^{11}$ at high energies. Nov 1947. 5p graphs (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

1. Carbon, Radioactive 2. Atomic power—Research 3. MDDC 1458

PB 95715

Hess, David C., Jr. and others.

Mass spectrographic assignment of activities to Re^{186} and Re^{188}. May 1947. 1p (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

1. Rhenium—Spectrographic analysis 2. Atomic power—Research 3. MDDC 1119

PB 96378

Inghram, Mark G. and others.

Isotopic consitution of praseodymium and neodymium. Jan 1948. 2p graph, table (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

1. Praseodymium—Isotopes 2. Neodymium—Isotopes 3. Atomic power—Research 4. MDDC 1740

PB 96459

Jones, Wesley M.

Thermodynamic functions for tritium and tritium hydride. The equilibrium of tritium and hydrogen with tritium hydride. The dissociation of tritium and tritium hydride. Jan 1948. 9p tables, graphs (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

The heat capacity, entropy, internal energy, and free energy are calculated to 2500°C for tritium and tritium hydride. The distribution of tritium between the ortho and para states is considered. The equilibrium constant for the formation of tritium hydride from hydrogen and tritium is calculated from 50 to 2500°K. The dissociation of tritium and tritium hydride into the atoms is discussed. The dissociation equilibria of hydrogen, deuterium, and deuterium hydride have been recalculated. The bearing of the radioactivity of tritium and tritium hydride on the attainment of thermodynamic equilibrium is briefly considered. AECD 1863

PB 96480

Khym, J. X. and others.

Ca^{45}: Production from scandium in the pile, radiation characteristics, and preparation in carrier-free form. Feb 1946. 12p graphs (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

Carrier-free Ca^{45} has been prepared by bombarding Sc_2O_3 in the Clinton pile. The following reactions were found to occur:

$$_{21}Sc^{45} + {}_0n^1 \rightarrow {}_{20}Ca^{45} + {}_1p^1$$

$$_{21}Sc^{45} + {}_0n^1 \rightarrow {}_{21}Sc^{46} + \gamma$$

The preparation consisted of the following steps: 1) The exposure of high purity Sc_2O_3 to pile neutrons to produce Ca^{45}. 2) A semihot operation to separate the bulk of the Sc^{46} from Ca^{45}. (This eliminates the troublesome γ activity coming from the Sc^{46}. The activity remaining with the Ca^{45} fraction is fairly weak and may be handled in the laboratory without shielding.) 3) The purification of Ca^{45} taking advantage of reactions which separate the remaining traces of Sc^{46} from Ca^{45} and which leave the Ca^{45} in a carrier-free and solid-free form. The radiations from both Ca^{45} and Sc^{46} were studied; the values found do not agree with those in the literature. MDDC 1214

PB 95748

Knox, William J.

Relative cross sections of reactions induced by high energy neutrons in C,N,O, and F. n.d. 2p (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

1. Carbon, Radioactive 2. Nitrogen, Radioactive 3. Oxygen, Radioactive 4. Fluorine, Radioactive 5. Neutrons—Energy measurements 6. Atomic power—Research 7. MDDC 1354

PB 96398

Lanz, Henry Jr., and Hamilton, Joseph G.

Comparative metabolism and distribution of carrier-free radioarsenic (AS^{74}). n.d. 19p graphs, tables (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

Rats, cats, dogs, guinea pigs, rabbits, mice and chicks were injected intramuscularly with carrier-free radioarsenic, as arsenate, and the distribution in various organs as a function of time was studied. In vivo, rat blood concentrated the arsenate to a remarkable extent, approximately 50% of the dose finding its way into the blood stream 48 hours after administration of the arsenic. The site of concentration in the blood appeared to be the hemoglobin. No other species approached the rat closer than a factor of ten in this respect, the cat being the only species which resembled the rat to any extent. In vitro, it was found possible to introduce the radioarsenate into the red cells of rabbits and humans, as well as rats. In vivo this was only possible with the rat and to a much smaller degree with the cat. Muscle and skeleton were the chief points of concentration in all animals except the rat. Even here, the concentrations were of the order of 1-2% at 48 hours, indicating rapid excretion. The livers of the rat, cat, rabbit, and guinea pig also showed approximately a 1% uptake at 48 hours, while mouse and chick livers only yielded slightly more than traces. MDDC 1596

PB 95743

Levy, Paul W.

Radiations from 60-day Ir^{192} and 27-day Pa^{233}. n.d. 2p tables (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

1. Iridium—Radiation 2. Protoactinium 3. Atomic power—Research 4. MDDC 1043

PB 95719

Mateosian, E. der and others.

Multiple nuclear isomerism. Jul 1947. 2p diagrs (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

1. Nuclear reactions 2. Antimony—Neutron activity 3. Atomic power—Research 4. MDDC 1400

PB 96444

McMillan, Edwin M. and Miller, Richard D.

Absolute cross section for the reaction C^{12} (p, pn) C^{11} at high energy. Sep 1947. 3p (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

1. Carbon, Radioactive 2. Protons—Energy measurements 3. Atomic power—Research 4. MDDC 1425

PB 95726

McMillan, Edwin M.

Excitation curve for the reaction C^{12} (p,pn) up to 140 mev. n.d. 6p diagr, graph (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

1. Carbon—Spectrographic analysis 2. Atomic power—Research 3. MDDC 1306

PB 96450

Moak, C. D.

Construction features of a circuit for coincidence measurements and applications of the circuit to nuclear problems. Apr 1945. 10p photo, diagrs, graphs (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $10.)

1. Gamma rays—Energy measurements 2. Nuclear reactions 3. Gold—Radioactivity 4. Xenon—Radioactivity 5. Atomic power—Research 6. MDDC 1010

PB 95724

Monk, G. W. and Werner, G. K.

Trochotron design principles. Feb 1948. 11p diagrs, graphs (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

A simple derivation of the perfect focusing properties of the trochoidal type mass spectrometer is given which leads to convenient methods of correlating the many variables for design purposes. Nomographs and general trochoids are given which apply to charged particles in crossed, uniform electric and magnetic fields. AECD 2096

PB 95733

Motta, E. E. and Boyd, G. E.

Characterization of Tc activities produced by deuteron bombardment of separated Mo isotopes. May 1948. 7p graphs (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

Deuteron bombardments on Mo^{94} led to the formation of a T_c activity which decayed with a half-

life of 50 ± 2 minutes and emitted positrons of 2.5 ± 0.3 Mev energy. One hour deuteron bombardments on Mo^{95} were observed to give rise to a T_c activity of 20 ± 2 hour half-life which decayed with the emission of 16.5 ± 1.5 kev X-rays, and a gamma ray of 0.8 ± 0.1 Mev energy. Deuteron irradiations on Mo^{98} varying between forty minutes and one hour were found to yield another T_c activity of 2.8 ± 0.1 day half-life. AECD 2073

PB 95732

Motta, E. E. and Boyd, G. E.

Long lived Tc activities produced by deuteron bombardment of separated Mo isotopes. Jun 1948. 3p graphs (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

Confirmatory evidence is reported on the mass assignment of several of the long-lived Tc activities, based on the results of bombardments of the various separated Mo isotopes with ~22 Mev deuterons from the Berkely 60-inch cyclotron. AECD 2074

PB 95712

Novick, Aaron

Half-life of tritium. May 1947. 1p (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

1. Tritium 2. Atomic power—Research 3. MDDC 1236

PB 95708

Parker, G. W. and others.

5.3-Day element 61. n.d. 1p (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

1. Elements—Analysis 2. Atomic power—Research 3. MDDC 978

PB 96461

Patterson, James H. and Banks, Charles V.

Electrolytic and polarographic determination of zinc in thorium. Dec 1947. 13p tables (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

Methods for the determination of zinc in thorium-zinc alloys ranging from 20 ppm to 100 per cent zinc are described. An electrolytic method is used for alloys that contain more than one per cent zinc. In this procedure the thorium is complexed with citrate so that it does not interfere with the deposition of zinc. For thorium containing less than one per cent zinc, a polarographic method is used. In this method the thorium is complexed with sulfosalicylate. The solution used contains 0.02 per cent gelatin to suppress the zinc maximum and had a pH of 8.5. In both electrolytic and polarographic methods nitrate interferes. MDDC 1708

PB 95735

Rall, Wilfrid

Design of the high frequency spark source for the mass spectrograph. Jun 1946. 3p drawings (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

1. Mass spectrographs 2. Atomic power—Research 3. MDDC 1107

PB 95734

Richardson, J. Reginald.

Lifetime of the heavy meson. Aug 1948. 2p (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

A preliminary investigation made of the loss of negative mesons from a beam of alpha particles, the loss corresponding to the $\pi \rightarrow \mu$ decay process. AECD 2308

PB 95704

Saxon, D.

Beta spectrum of Au^{198}. Dec 1947. 5p graphs (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

1. Gold—Atomic stopping power 2. Gold—Beta spectrum 3. Beta rays—counts 4. Atomic power—Research 5. MDDC 1668

PB 95707

Seidl, F. G. P. and Harris, S. P.

Calibration of A Ra-Be neutron source by the $B(n,\alpha)Li$ reaction. Jun 1947. 7p tables (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

1. Lithium—Neutrons—Energy measurements 2. Neutrons—Energy measurements 3. Atomic power—Research 4. MDDC 1193

PB 95747

Seifert, R. L.

Spectral emissivity and total emissivity of beryllium oxide. Aug 1946. 27p drawings, graphs, tables (Limited supply mimeo $.15) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.15)

1. Beryllium oxides—Emission 2. Spectrographic analysis 3. Atomic power—Research 4. MDDC 675

PB 95744

Spatz, W. D. B. and others.

Photo-neutrons produced in D_2O and beryllium by fission product gamma-rays. n.d. 6p tables

(Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

1. Deuterium—Photo—Neutrons 2. Beryllium—Photo—Neutrons 3. Gamma rays—Fission products 4. Atomic power—Research 5. MDDC 871

PB 96482

Spedding, F. H. and others.

Uranium hydride. Part I. Preparation, composition, and physical properties. n.d. 12p drawings, graphs, tables (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

The methods of preparation and formation of uranium hydride and deuteride are given. The formula of the compound is discussed together with its physical chemical properties. These included thermal decomposition, physical state, density, electrical conductivity, dissociation pressure-composition isotherms, pressure-temperature relationships, heat of formation, kinetics of formation, and hydrogendeuterium separation studies. The classification of uranium hydride with respect to other hydrides is briefly discussed. MDDC 1585

PB 95741

Sugarman, Nathan and Richter, Harold.

Note on the natural radioactivity of rhenium. Feb 1948. 2p table (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

1. Phenium—Radioactivity 2. Atomic power—Research 3. AECD 1844

PB 96455

Taschek, R. F.

Technique for observing nuclear disintegrations and scattering in small gas volumes. n.d. 10p drawing, graphs (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

A scattering chamber of small gas volume is described and its uses as a neutron source pointed out. Data is shown for the deuteron-deuteron interaction. MDDC 1633

PB 95749

Wahlin, H. B.

Emissivity and temperature scale for vacuum heated uranium. Sep 1944. 2p table (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

1. Uranium—Thermal properties 2. Uranium—Emission 3. Vacuum—Measurements 4. Atomic power—Research 5. MDDC 830

—82231

PB 96457

Warf, J. C. and others.

Uranium hydride. III. Dispersions in mercury. n.d. 5p table (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

The formation of dispersed systems of uranium hydride and mercury is described. The systems are termed amalgams, although the evidence disclosed that the preparations are not true solutions or amalgams, but suspensions. The consistency of the amalgams as a function of concentration, the behavior of radioxenon in uranium hydride upon amalgamation, the exchange of hydrogen with the deuterium of uranium deuteride amalgams and vice versa, the chemical properties of the hydride amalgams, and the formation of related systems are discussed. MDDC 1586

PB 95736

Wigner, E. P. and Eisenbud, L.

Mathematical foundation of the resonance theory. n.d. 4p (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

1. Particles, Resonance—Density 2. Mathematical equations and solutions 3. Atomic power—Research 4. MDDC 774

PB 95742

Wollan, E. O. and Shull, C. G.

Diffraction of neutrons by crystalline powders. n.d. 11p photo, graphs, tables (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

1. Neutrons—Diffusion 2. Powders, Crystalline 3. Atomic power—Research 4. MDDC 869

PHYSIOLOGY

PB 96234

Fetcher, E. S. and others.

Osmotic regulation in desert mammals and methods of analysis in the field. Nov 1948. 143p charts, tables Mi $5.75 Ph $18.75

1. Osmosis—Regulation 2. Mammalogy 3. AAF TSEAA MR

PB 96426

Knowlton, Norman P., Jr. and others.

Preliminary report of the effect of X-rays on the mitotic activity of skin. n.d. 2p graph (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

1. X-rays—Physiological effects 2. Skin—X-ray—Effects 3. Atomic power—Research 4. AECD 1808 5. MDDC LADC 492

PB 96346

Ronge, Hans

Fysiologiska och tekniska fragor vid artificiell belysning. (Physiological and technical questions with respect to artificial illumination an orientation, with biliography). 1945. 34p (Text in Swedish or English) Mi $2.25 Ph $5.00

1. Illumination—Sweden 2. Svenska. Statens Kommitte för Byggnadsforskning Institutet. Meddelanden. 8

PB 96484

Scott, K. G. and others.

Metabolism of curium in the rat. Jan 1948. 10p graphs, tables (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

1. Curium—Metabolism 2. Atomic power—Research 3. AECD 1805

PB 91947s

Shaw, Robert S. and others.

Venous pressure in the head under negative acceleration. 10p drawing, graphs Mi $1.25 Ph $1.25

1. AAF TSEAA MR 695-74D, Supp.

PB 89157

Skramlik, Emil von

Vorgänge im kreislaufsystem von amphioxus lanceolatus Y. (Circulatory system of Amphioxus lanceolatus Y). 9p diagrs (Text in German) Mi $1.25 Ph $1.25

1. Amphioxus lanceolatus Y—Germany

PB 96436

Valentine, W. N. and others.

Relation of adrenal cortical hormone to lymphoid tissue and lymphocytes. Dec 1947. 49p tables (Limited supply mimeo $.25) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.25)

1. Lymphoid tissue 2. Adrenals—Extracts, Cortical 3. Hormones 4. Lymphocytes 5. Atomic power—Research 6. MDDC 1570

PSYCHOLOGY

PB 95009

Grether, Walter F. and Connell, Shirley C.

Psychological factors in check reading of single instruments. Sep 1948. 21p diagrs, tables Mi $2.00 Ph $3.75

1. Instruments, Indicating—Reading

PB 95274

Rulen, P. J.

The inconsistency of pilot performance in approaching the stall: Relationship to flight conditions, experience, and age. Sep 1948. 189p tables Mi $6.75 Ph $23.75

1. Psychology, Aviation 2. Airplanes—Stalling 3. U. S. National Research Council. Committee on aviation psychology

PB 96026

Stansfield, R. G.

The science of work. German work-study and occupational psychology: Conference at Hahnenklee. Dec 1946. 97p Mi $4.25 Ph $12.50

1. Industrial psychology—Germany 2. Time study—Germany 3. Motion and time study—Germany 4. BIOS FR 1799, Item 28

RUBBER AND RUBBER PRODUCTS

PB 88805s4

Chemische und physikalische untersuchung von standard tonerdegel. (Chemical and physical examination of standard colloidal alumina). Mar 1948. 9p tables (Text in German) Mi $1.25 Ph $1.25

1. Alumina—Gels—Germany 2. FIAT FR 1128-4

PB 95401

Dawson, T. R.

Rubber industry in Germany during the period 1939-1945. 1948. 150p tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.90

1. Rubber industry—Germany 2. I. G. Farbenindustrie A. G. 3. BIOS OR 7

PB 96497

Gt. Brit. Ministry of Supply.

Untersuchung von leichtgummiproben der Firma Vorwerk and Sohn, Wuppertal-Barmen. (Examination of sponge rubber samples from Verwerk and Son, Wuppertal-Barmen). Dec 1941. 16p diagrs, tables Mi $1.75 Ph $2.50

Legends in German

1. Rubber, Buna—Sponge—Germany 2. Gt. Brit. Ministry of Supply 3. Micro GDC 15/609T, translation

PB 96570

I. G. Farbenindustrie A. G., Frankfurt am Main, Ger.

Buna S plant. Buna N. 1944-1945. 13f (Text in German) Mi $1.75 Enl Pr $3.75

See PB 96570s for abstracts. 2p. Mi $1.25 Ph $1.25

1. Rubber, Buna—Production—Germany 2. Buna S (Trade name) 3. Buna N (Trade name) 4. Micro BIOS FD 2252/47, Frames 1-12

PB 95233

I. G. Farbenindustrie A. G., Huels, Ger.

Manufacture of Buna. 1945. 6f (Text in French) Mi $1.25 Enl Pr $2.50

See PB 95233s for abstracts. Ip. Mi $1.25 Ph $1.25

1. Buna (Trade name) 2. Rubber, Buna—Production—Germany 3. Micro BIOS FD 1673/48, Frames 463-468

PB 96569

I. G. Farbenindustrie A. G., Leverkusen, Ger.

Buna S plant. Buna S special material MKV 8018. 1942. 4f (Text in German) Mi $1.25 Enl Pr $2.50

See PB 96569s for abstract. Ip. Mi $1.25 Ph $1.25

1. Rubber, Buna—Production—Germany 2. Buna S (Trade name) 3. MKV 8018 (Buna S special material) 4. Micro BIOS FD 2251/47, Frames 1-3

PB 96579

I. G. Farbenindustrie A. G., Schkopau, Ger.

Cold resistant buna. 1942-1943. 12f (Text in German) Mi $1.75 Enl Pr $3.75

See PB 96579s for abstracts. 2p. Mi $1.25 Ph $1.25

1. Rubber, Buna—Cold resistance 2. Micro BIOS FD 2236/47, Frames 1-11

PB 95155

I. G. Farbenindustrie A. G., Schkopau, Ger.

Diazo-amino-benzol for sponges made from Igelit PCU, and vulcanisation of synthetic rubber without sulphur. 1944. 3f (Text in German) Mi $1.25 Enl Pr $2.50

See PB 95155s for abstracts. Ip. Mi $1.25 Ph $1.25

1. Sponges—Germany 2. Igelit PCU (Trade name) 3. Diazo compounds—Germany 5. Micro BIOS FD 2341/47, Frames 1-2

PB 95151

I. G. Farbenindustrie A. G., Schkopau, Ger.

Minutes of meetings and correspondence on Buna S polymerisation. 1939-1945. 180f (Text in German) Mi $6.50 Enl Pr $23.75

See PB 95151s for abstracts. Ip. Mi $1.25 Ph $1.25

1. Buna S (Trade Name) 2. Rubber, Buna—Polymerization—Germany 3. Micro BIOS FD 2191/47, Frames 1-180

PB 95102

I. G. Farbenindustrie A. G., Schkopau, Ger.

Minutes of meetings providing data relating to treatment and improving of a wide range of rubber goods. 1943-1944. 26f (Text in German) Mi $2.00 Enl Pr $5.00

See PB 95102s for abstracts. 2p. Mi $1.25 Ph $1.25

1. Rubber—Germany 2. Micro BIOS FD 2428/47, Frames 1-24

—62231

PB 95351

I. G. Farbenindustrie A. G., Schkopau, Ger.

Notes, letters, etc., concerning production methods, problems, uses and data of butol. 1939-1942. 36f (Text in German) Mi $2.25 Enl Pr $6.25

See PB 95351s for abstracts. 2p. Mi $1.25 Ph $1.25

1. Butanediol—Germany 2. Micro BIOS FD 2109/47, Frames 1-34

PB 96566

I. G. Farbenindustrie A. G., Schkopau, Ger.

Production of various types of buna and tests of the material. 1939-1943. 117f (Text in German) Mi $4.75 Enl Pr $16.25

See PB 96566s for abstracts. Ip. Mi $1.25 Ph $1.25

1. Rubber, Buna—Tests—Germany 2. Micro BIOS FD 2250/47, Frames 1-116

PB 96577

I. G. Farbenindustrie A. G., Schkopau, Ger.

Substitution of other substances for linoleic fatty acid in the polymerisation of Buna S. 1939-1944. 26f (Text in German) Mi $2.00 Enl Pr $5.00

See PB 96577s for abstracts. Ip. Mi $1.25 Ph $1.25

1. Buna S (Trade name) 2. Linoleic acid—Substitutes in synthetic rubber production 3. Micro BIOS FD 2244/47, Frames 1-25

PB 95142

I. G. Farbenindustrie A. G., Schkopau, Ger.

Synthetic rubber "Butex". 1941. 4f (Text in German) Mi $1.25 Enl Pr $2.50

See PB 95142s for abstracts. Ip. Mi $1.25 Ph $1.25

1. Butex (Trade name) 2. Rubber, Synthetic—Germany 3. Micro BIOS FD 2450/47, Frames 1-3

PB 96507

Roelig, H.

Die eigenschaften technischer bunagummisorten und deren einfluss auf die formgebung von gummiteilen. (The properties of technical types of buna rubber, and their influence on the moulding of rubber components). Feb 1942. 15p photos, diagrs, chart, tables Mi $1.75 Ph $2.50

1. Rubber, Buna—Properties—Germany 2. Gt. Brit. Ministry of Supply 3. Micro GDC 10/13027T, translation

PB 96218

Spulak (Dr.) von.

The use of Desmosite compounds in cementing rubber to metal. Dec 1942. 19p photos, graphs, tables Mi $1.75 Ph $2.50

Legends in German

This report may not reproduce well

1. Gt. Brit. Ministry of Supply 2. I. G. Farbenindustrie A. G. 3. "Desmosites" (Polystal sponge)—Germany 4. Rubber—Cementing—Germany 5. Micro GDC 10/4466T, translation

PB 95303

U. S. Air Force and U. S. Navy Dept.

Casings: Aircraft penumatic tire. Air Force-Navy aeronautical bulletin. Oct 1948. 7p tables Mi $1.25 Ph $1.25

1. Tires, Aircraft 2. Casings 3. AN AB 291b 4. AN-C-55

STRUCTURAL ENGINEERING, INCLUDING BUILDING MATERIALS

PB 95943

Der bauingenieur (Structural engineer). v. 23, nos. 19-52. 1942.

Die bautechnik (Structural engineering). v. 21, nos. 29-56. 1943. v. 22, nos. 1-50. Jan-Oct 1944. v. 23, nos. 1-8. 1945.

Beton und stahlbetonbau (Concrete and reinforced concrete construction). v.42. 1943. v. 43, nos. 1-4, 13-22. 1944. v. 44, nos. 1-4. 1945.

Stahlbau (Steel construction). v. 17, nos. 21-24. 1944. v. 18, nos. 1-4. 1945.

Bautenschutz (Protection of buildings). v. 12, nos. 1-12. 1941.

Beton und eisen (Concrete and iron). v. 40, nos. 1-24. 1941. v. 41, nos. 13-24. 1942.

Betonstrasse (Concrete road). v. 16, nos. 6-7. 1941. 687f (Text in German) Mi $9.00 Enl Pr $88.75

1. Structural engineering—Periodicals—Germany 2. Construction—Periodicals—Germany 3. Concrete construction—Periodicals—Germany 4. Construction, Steel—Periodicals—Germany 5. Buildings—Protection—Periodicals—Germany 6. Concrete—Periodicals—Germany 7. Iron—Periodicals—Germany 8. Roads, Concrete—Periodicals—Germany 9. Micro FIAT K 48, Frames 2200-2870

PB 19797

Brigham, George G., Jr.

The Brigham system of prefabricated building construction. Final progress report. Sep 1944. 24p photos., drawings Limited supply mimeo $1.00; thereafter Mi $.50 Ph $2.00 (Bib. v.1, p. 1589)

1. Buildings, Prefabricated 2. Construction

PB 96545

Granholm, Hjalmar

Värmeisoleringsförmågan hos hålblock av betong eller tegel. (Heat insulation properties of hollow concrete blocks and perforated bricks). 1948. 65p photos, graphs, tables (Text in Sweden) Mi $3.00 Ph $8.75

Summary in English

1. Chalmers University of Technology. Gothenberg, Sweden. 80

The usual methods of determining the thermal insulation of hollow blocks often gives erroneous and decidedly misleading regults. In the present paper a simple and reliable electrical analogue is described, which allows a study of the heat resistance of hollow blocks of various types and manufactured of material with arbitrary thermal conductivity. Among the more than 100 different types of hollow concrete blocks on the Swedish market a number of characteristic representatives are analyzed. In order to compare the various makes of hollow blocks a quality number is introduced, indicating how many times the thermal insulation is increased owing to the hollows and air spaces. The quality number lies between 1,10 and 4,50 for the current types of blocks according to the shape and number of the spaces. It is technically possible to reach quality numbers ranging from 5,0 to 6,0. The results obtained are compared with tests on full scale walls. The current types of perforated bricks with 75, 105 and 119 square perforations are also studied. The paper contains a suggestion to improve these types of bricks by making the perforations in the shape of narrow rectangles instead of the now usual square holes 3/8" X 3/8". The quality number of the brick can be increased in this way from 1,45 a 2,00 up to 2,00 a 3,50 according to the type of brick used. A comparison is made with tests on full scale brick walls and the tests are analyzed in detail.

PB 95259

Gurney, C. and Rowe, P. W.

The effect of radial pressure on the flow and fracture of reinforced plastic rods. May 1945. 10p illus, graphs Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.70

Round rods of six different reinforced plastics were broken in simple tension, combinations of tension and radial pressure, and under approximately simple radial fluid pressure. Fracture under radial pressure had the appearance of being caused by longitudinal tension, and it occurred at much greater longitudinal strains than those at fracture in tension. The primary cause of fracture under radial pressure is considered to be the flow induced by shear components of the applied stress system. Flow destroys the regularity of the atomic arrangement or the arrangement of microscopic groups of atoms in materials and thus reduces cohesion. At the same time it sets up internal stresses which are especially large in heterogeneous materials such as reinforced plastics. With continued flow the internal stresses locally exceed those which the weakened material can withstand and cracks are formed. Fluid under pressure then enters the cracks and completes the fracture. The

stress distribution in the test piece when loaded in the radial pressure apparatus, which was similar to that used by Bridgman, is not one of simple radial stress, but the additional stresses are not thought to be a primary cause of fracture of the plastic test pieces, although they may cause premature failure of more brittle materials such as mineral glasses. A general discussion is given of possible causes of failure of materials subjected to radial pressure. ARC RM 2283

PB 19932s

I. G. Farbenindustrie A. G., Griesheim, Ger.

Reports on a series of sessions of the Sub-Commission on Building Materials. (Baustoff-UKO), 1934-1937. Feb 1946. 15p (Text in German and English) Mi $1.75 Ph $2.50

Supplement I to PB 19932

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I. Micro FIAT LF 116, Index

PB 83422s

I. G. Farbenindustrie A. G., Griesheim, Ger.

Reports on a series of sessions of the Sub-Committee on Building Materials (UKO). Baustoff-UKO. Feb 1946. 8p (Text in German and English) Mi $1.25 Ph $1.25

Supplement I to PB 83422

I. Micro FIAT C 119, Index

PB 96030

Johansson, C. H. and others.

Sorption in flow through a granular layer. 1948. 34p drawing, graphs Mi $2.25 Ph $5.00

I. Royal Swedish Academy of Engineering Sciences. Handlingar no. 200

The sorption process in flow through a granular layer is discussed in connection with a previous experimental investigation. The process has been studied for an isotherm concave towards the abscissa axis, with consideration taken to the real shape of the isotherm and for a linear isotherm when the velocity of flow is great. For all cases the authors discuss, on one hand, how the concentration in the flowing medium decreases along the layer, and on the other, how the quantity sorbed by the sorbent is distributed in the layer. The investigation makes clear qualitatively how the experimentally obtained curves are dependent on the shape of the isotherm and on the position of the operating point on the isotherm. The authors finally wish to thank Professor Gustaf Ljunggren at the Research Institute of National Defence, Ulriksdal, for the continuous and encouraging interest he has taken in this work.

PB 95329s

Lendrum, J. T. and others.

Construction methods. Sep 1948. 12p illus, drawings Mi $1.75 Ph $2.50

Supplement I of PB 95329

I. Illinois. University. Bulletin

PB 95329

Lendrum, James T. and Rettberg, Gerhard C.

Research report on a study construction methods. 1948. 130p drawings, graph, tables Mimeo: $2.50

I. Illinois. University Small Homes Council and U. S. Office of Technical Services

Three frame and three masonry houses were constructed by a variety of techniques in order to determine what assembly methods, or combination of methods, would yield the lowest cost structure. In order to compare methods more exactly, an accurate time-study was made covering all operations at the construction site. The combination of methods giving the minimum number of man-hours resulted in a saving of nearly twenty per cent of the total on-job labor. No special tools, mass buying or mass assembly were tried. All improvements were limited to such techniques as could be practiced by a builder who constructs from one to four houses per year. Greatest savings were obtained when all materials possible were cut from schedules and detail drawings, rather than from field measurements taken as the job progressed. Pre-assembly of parts, both on the site and off the site, follows naturally after pre-cutting of material. The "single room" technique was used with great success. With this technique, exterior walls and roof are erected first. Before any interior partitions are erected, wall finish material, ceilings and finish floor are installed; plumbing, heating and wiring are started. Roof trusses make the "single room" technique possible and, in themselves, offer a means of saving both material and labor. Engineered plans—detailed to take advantage of advanced modular materials construction methods and the savings possible by their use—are a primary requisite to cost reduction. Selection of materials which lend themselves to modular construction methods is likewise a prerequisite.

PB 96143

Marguerre, K.

The optimum buckling load of a flexibly supported plate composed of two sheets joined by a lightweight filler, when under longitudinal compression. Oct 1944. 15p diagrs Mi $1.75 Ph $2.50

Legends in German

The investigation recorded in UM 1360/1 into the optimum dimensioning of a compound bar is in the present report extended to a laterally enlarged plate, flexibly supported all-round. It is again feasible to suggest diagrams whereby for a given load we can read off directly the appropriate optimum values for plate thickness, sheet weight and sheet strength. ZWB UM 1360/2. translation

—82231

PB 94674

Müller, Paul

Erddruckmessungen bei mechanisch verdichter hinterfüllung von stützkörpern, unter anwendung des elektroakustischen verfahrens Dr. Schäfer. (Pressure measurements of mechanically compressed foundation beds for bearing piles by means of Dr. Schafer's electroacoustic method). 1939. 9p photos, drawings, graphs, tables Mi $1.25 Ph $1.25

Results of tests carried out on sections of German superhighways. Reprint from "Die Bautechnik" No 13, 1939. A photograph, drawings, graphs and data tables are included.

PB 96336

Nycander, Per

Värmeisolering och kondensering hos fönster. (Heat transmission and condensation of double windows. Dependence on the distance between the panes and the ventilation between them). 1946. 25p diagrs, tables (Text in Swedish) Mi $2.00 Ph $3.75

Windows with inner- and outer glass panes in coupled sashes are often provided with a slit between the two sashes and between outer sash and frame while tightening is provided between frame and inner sash by means of a lining. The object of the slit is to ventilate the space between the two glass panes in order to prevent condensation in form of moisture or ice on the inside of the outer pane. With increased width of the slit the risk of condensation diminishes but the heat insulating value decreases. The present tests have been made to determine how the heat insulating value and condensation are dependent on the width of the slit and the distance between the panes. According to the test results conclusions are made as to suitable widths of slit and distances between the glass panes. The heat insulating value of the test windows is seen from Table 1. How the insulating value at constant width of slit of 1 mm. depends on the distance between the panes is shown by Fig. 2. How the insulating value depends on the width of slit at a constant glass to glass distance of 40 mms. is shown by Fig. 3. It is found that the insulating value does not change considerably when the width of slit and the distance between panes are varied within limits common in practice. The heat passage per unit area of the window seems to be almost independent of the size of the window. If a tightening lining is applied between the inner sash and the frame so that the warm inner air cannot get in between the glass panes there will as a rule be no condensation other than in connection with a sudden drop in the outside temperature. From the tests it appears that such condensation can be prevented by 1 mm. width of slit for distances between panes up to 40 mms. and by 2 mms. slit for distances up to 65 mms. At any rate the condensation seems to disappear rapidly when indicated widths of slit are provided. Thus it is found that a large distance between panes requires a large width of slit. By increasing the distance between the panes a slight increase in insulating value is gained if the slit is the same. If the slit, however, is increased according to the rules above there will be no advantage with large distance between the panes. Besides from drop of outside temperature condensation can occur if tightening of the window is made in such a way that the inside air can penetrate into the space between the glass panes. If incorrectly lining is placed between the outer sash and frame condensation can very easily occur on the inside surface of the outer glass pane. Even when correctly lining is placed between the inner sash and frame there can be condensation while the tightening seldom is complete. The possibility of condensation will then depend upon the difference in the air pressure on the outer and inner side of the window. If the outer air pressure is higher than the inner pressure no condensation will take place. If the pressure is almost the same on both sides condensation will not occur, provided the slit between outer sash and frame is larger than the slit between the inner sash and frame or a lining is applied on inner sash. If on the other hand the inside air pressure is higher than the outside air pressure and the tightening is incomplete, especially on the lower part of the window, there will easily be condensation. By a special design, however, which can be according to Fig. 9, condensation can be avoided. Summary in English.

—62231

PB 94388

Wise, Joseph A.

Water permeability of structural clay tile facing walls. Aug 1948. 35p photos, tables, diagrs Mi $2.25 Ph $5.00 Mimeo: $1.00

1. Tiles 2. Walls 3. Minnesota. University. Institute of Technology

TEXTILES AND TEXTILE PRODUCTS

PB 95956

Backer, Stanley.

The relationship between the structural geometry of textile fabrics and their physical properties: 1. Literature review. Aug 1948. 21p tables Mi $2.00 Ph $3.75

1. Textiles—Physical properties 2. QMC TSR no. 52

PB 95908

Barker, Edward D.

Thermal test of tent; arctic survival, barren land, 3-4 man, type B-1—under varied weather and occupancy conditions. Oct 1948. 11p charts Mi $1.75 Ph $2.50

1. Tents, Arctic 2. AAF TSEAA MR 670-21F

PB 95954

Edwards, John C.

Improvement of cot covers. Jul 1948. 42p illus, drawings Mi $2.50 Ph $6.25

1. Cots, Army—Tests 2. QMC TSR no. 49

PB 95856

Gralen, Nils and Olofsson, Bertil

Measurement of friction between single fibres. 1947. 18p illus, tables, graphs Mi $1.75 Ph $2.50

Svenska Textilforskningsinstitutet, Gothenberg. Meddelanden no. 3

An apparatus for measurement of the frictional forces between two single fibers has been designed and constructed. It is shown that it is possible to measure both static and dynamic friction with the apparatus described, and the theory for the measurements is developed. Some measurements on wool and artificial fibers are reported. The anti-scale frictional coefficient of wool has values up to unity but with a great dispersion, whereas the with-scale frictional coefficient is much lower and has a small dispersion. A treatment with bromine water decreases the difference considerably. It is shown that the frictional coefficient is approximately linearly dependent on the inverse value of the normal pressure (load) between the fibers. The slope of the line is assumed to be due to adhersion forces, proportional to the area of contact. The dynamic frictional coefficient is independent of the velocity of the fibers, at least for velocities up to 1.5 cm/sec. The intended uses of the apparatus are discussed. It can be used for studies of the influence of wool scaliness of milling properties and for studies of the importance and influence of static and dynamic frictional forces between fibers in the drawing of fibers for spinning.

PB 95859

Gralen, Nils.

Mikroorganismers angrepp pa lin- och hampgarn. (Micro-organisms attacking flax and hemp). 1947. 10p tables, graphs (Text in Swedish) Mi $1.25 Ph $1.25

Summary in English

Svenska Textilforsknings-institutet, Gothenberg, Meddelanden No. 4

The resistance of flax and hemp yarns to micro-organisms has been tested by a soil burial method at +30°C. Kier-boiling of the yarn gives an increased resistance to attack. A theory for the kinetics of the attack of micro-organisms has been worked out. It fits in well to the experimental curves obtained, giving the relation between breaking strength of the yarn and time of burial. Analysis of untreated yarns and of those kier-boiled has shown, that the amount of water-extractable substance in the yarn is diminished by kier-boiling. Also the amounts of uronic acid groups and methoxyl groups are diminished. The ester-bonded methoxyl groups disappear on boiling. The viscosity of a solution of the yarn in cuprammonium changes only little when the yarn has been attacked by micro-organisms, although the breaking strength of the yarn is diminished to very small values. This face is explained by the assumption that the attack of the micro-organisms is very localized.

PB 95342

I. G. Farbenindustrie A. G., Schkopau, Ger.

Correspondence concerning filter fabric substitutes. 1942-1944. 30f (Text in German) Mi $2.00 Enl Pr $5.00

See PB 95342s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Fabrics, Synthetic—Germany 2. Filters—Materials—Germany 3. Micro BIOS FD 2111/47, Frames 1-29

PB 95858

Kärrholm, Marianne and others.

Provning av vattenavvisande förmaga hos vävnader. (Methods of testing water repellency). 1947. 27p tables, graphs (Text in Swedish) Mi $2.00 Ph $3.75

Summary in English

Svenska Textilforsknings-institutet, Gothenberg, Meddelanden No. 5

A short review of various methods of testing water repellency is given, and a new apparatus, built on the principle of an artificial rainfall, is described. Several investigations have been performed with this apparatus. The temperature of the raining water must be kept within 2° C, if the water absorbed in the cloth on testing shall not vary more than 5%. Increased temperature means increased water absorption. The amount of rain may be varied within 500 ± 20 ml per minute, if the variation in absorption shall be less than 5%. There is no difference in absorption, if a given amount of water falls slowly over a shorter or more rapidly over a longer time. The amount of water per sample should be at least 4 liters, in order to give proper flowing down the cloth. The hardness of water is of small importance. The pH is essential, especially with wook cloth. It may be varied between 6 and 8. The height of the fall of drops should be at least 1.5m. A lower height gives too high a dispersion of the experimental results. We have investigated the amount of water absorbed as a function of the time of the rain fall for a few different types of cloth. The results of the test should be given as water absorbed in percent of the weight or the volume of the cloth.

PB 95026

Kebl, (ing) and others.

Glanzstoff courtaulds—Köln—Merheim, Ger. Jun 1947. 19p drawings (Text in Polish) Mi $1.75 Ph $2.50

1. Glanzstoff Courtaulds—Cologne, Ger. 2. Yarn, Synthetic—Manufacture—Germany

PB 95022

Kebl, (Ing.) and others.
J. P. Bemberg A. G.—Wuppetal, Ger. Jun 1947. 3p (Text in Polish) Mi $1.25 Ph $1.25
1. Fabrics—Rayon 2. Bemberg, J. P., A. G., Wuppertal, Ger.

PB 95025

Kebl, (Ing) and others.
Kampf A Spindler—Hilden. Jun 1948. 9p drawings (Text in Polish) Mi $1.25 Ph $1.25
1. Kampf—Spindler. Hilden—Ger.

PB 95023

Kebl, (Ing.) and others.
Rheinische Kunstseide A. G. Krefeld-Uebdingen. Jun 1947. 18p drawings (Text in Polish) Mi $1.75 Ph $2.50
1. Rheinische Kunstseide A. G., Krefeld-Uebdingen

PB 95024

Kebl, (Ing.) and others.
Rheinische Zellwolle A. G.—Siegbury, Ger. Jun 1947. 17p drawings (Text in Polish) Mi $1.75 Ph $2.50
1. Yarns, Synthetic—Manufacturing—Germany 2. Fabrics, Rayon—Germany

PB 95921

Klepzigs textil zeitschrift. (Klepzigs textile journal) v. 42, Nos. 1-52. 1939. v. 43, Nos. 1-9. 1940. 631f (Text in German) Mi $9.00 Enl Pr $82.50
1. Textiles—Periodicals—Germany 2. Micro FIAT M 27, Frames 4183-4814

PB 95959

Klepzigs textil zeitschrift. (Klepzigs textile journal). v. 43, Nos. 1-52. Jan-Dec 1940. v. 44, Nos. 1-12 (incomplete). Jan-Mar 1941. 574f (Text in German) Mi $9.00 Enl Pr $75.00
1. Textiles—Periodicals—Germany 2. Micro FIAT O 69, Frames 1788-2360

PB 95857

Lindberg, Joel and Gralen, Nils
Measurement of friction between single fibres; II. The frictional properties of wool fibres measured by the fibre twist method. 1948. 35p Mi $2.25 Ph $5.00
1. Fibres, Wool—Friction—Research—Sweden 2. Friction—Research—Sweden 3. Triboelectricity—Sweden 4. Svenska Textilforskningsinstitutet, Gothenberg. Meddelanden no. 6

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PB 95852

Olofsson, Bertil.
Investigation of wool by electron microscope. 1946. 12p illus Mi $1.75 Ph $2.50
Svenska Textilforsknings-institutet, Gothenberg. Meddelanden No. 2

The results here obtained justify only very cautious conclusions. They tend to show that the electron microscope ought not to be regarded as a decisive, but a complementary instrument of investigation in this field. Pictures of a certain kind of preparation can be looked upon as characteristic only when there is a statistical probability for it. But reserving this, very interesting conclusions and comparisons can be made. The wool keratin can be broken down by >>mild>> reagents, e.g., trypsin, which split up in a fibrous manner exclusively. What occurs here is a destruction of material which is not very resistant chemically. Yet this material is not specifically sensitive to trypsin treatment, since concentrated sulphuric acid, too, gives a primary decomposition of the kind. On the other hand, the principal part of the peptide, cystine, and other bonds is intact. The fibrils preserve their structure substantially. Stronger or longer treatment, though, destroys these bonds too. Acids principally affect the peptide bonds hydrolytically, and at the same time the fiber structure becomes disorientated and >>blurred>>. Alkalis principally affect the cystine bonds; this sort of splitting does not seem to react so rapidly on the orientation of the fiber. It also seems as if the reaction of the wool fiber with alkalis is more homogeneous than its reaction with acids. The latter rather sets in at separate points, where it effects a real splitting up of the structure, the former has a uniform destroying effect all over the fibril. This may be due to the fact that the activating energy for the splitting of the peptide bonds is less easily attained in the acid solution, than the corresponding energy for the splitting of the cystine bonds is attained in the alkaline one. After some alkaline treatment keratin may be re-formed, though in a very degenerate state. In what respect the >>easily affected>> substance is different from the main part of the keratin seems to be a difficult question. As the action of trypsin on proteins is of a hydrolytic character, one might suppose that the decomposition of wool, too, is a hydrolytic process. It is possible that the substance sensitive to trypsin is like a net of fine membranes enclosing the fibrils. This seems to be more probable than to suppose the main part of the cortex layer to be made of this substance, and the microfibrils to be protected by more resistant membranes. The further investigation of the existence and properties of the

>>chemically sensitive>> substance is a tempting but difficult task.

PB 95955

Tanehaus, Seaman J. and Winston, Gerald.

Second report of the A.S.T.M. Task Group studying the Wyzenbeek precision wear test meter. Jul 1948. 31p illus, tables, graphs Mi $2.25 Ph $5.00

1. Textiles—Testing equipment 2. Wyzenbeek precision wear meters 3. QMC TSR no. 50

PB 95481

U. S. Air Force and U. S. Navy Dept.

Cord: Elastic, shock absorber. Air Force-Navy aeronautical specification. Oct 1948. 10p tables Mi $1.25 Ph $1.25

1. Shock absorbers—Cord 2. AN-C-175

PB 96635

Wool Industries Research Association, Leeds, England.

The German wool industry during the period 1939-1945. 1948. 56p diagrs, drawings Mi $2.75 Ph $7.50

British Organization

1. Wool industry—Germany 2. Dyes, Wool—Germany 3. BIOS OR 9

PB 96004

Zellwolle, kunstseide, seide. (Staple fiber, rayon, silk). v. 46, Nos. 6-12. 1941. v. 47, Nos. 1-12. 1942. v. 48, Nos. 1-3. 1943.

Monatshefte für seide und kunstseide, zellwelle. (Monthly publication for silk, rayon and staple fiber). v. 44. 1939. 700f (Text in German) Mi $9.00 Enl Pr $90.00

1. Fibers, Staple—Periodicals—Germany 2. Rayon fibers—Periodicals—Germany 3. Silk—Periodicals—Germany 4. Micro FIAT K 91, Frames 2111-2810

TRANSPORTATION EQUIPMENT

Aeronautics

Aircraft

PB 23946

Czerlinsky, E.

Zerstorungsfreie werkstoffprufung durch ultraschall. (Non-destructive diasonic material testing). 1942. 6p photos, diagrs Mi $1.25 Ph $1.25

Reprints from Jahrbuch der deutsches Luftfahrt forschung 1942

Translation of PB 23946

Legends in German

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Illustrations may not reproduce well

A method is here described by means of which the material samples are subjected to ultrasonic radiation, and faults revealed in an optically visible image. Fields of application are explained for some of the results. Micro GDC 10/-13153t, translation

PB 94219

Putnam, Abbott A. and Reisert, Thomas D.

Analysis of the fatigue life of an airplane wing structure under overload conditions. Feb 1946. 7p graphs Mi $1.25 Ph $1.25

Results of an analysis to determine the effect of overload operations on wing fatigue life are presented. The investigation was confined to one transport-type airplane, which was assumed to operate at cruising power and with overload up to 50 percent of design gross weight. Overload weight concentrated in the fuselage was found to adversely affect the fatigue life, but overload weight distributed proportionally to the design gross weight had negligible effect on the fatigue life. The fatigue life, furthermore, was adversely affected by overload to a smaller degree than the single-gust life. As in the case of single-gust life, the wing-weight ratio was a main factor in determining the relative reduction of fatigue life by overload. NACA L-10.

PB 94290

Quinn, John H., Jr.

Effects of Reynolds number and leading-edge roughness on lift and drag characteristics of the NACA 65_3-418, a= 1.0 airfoil section. Nov 1945. 15p photo, graphs Mi $1.75 Ph $2.50

Tests were made in the Langley two-dimensional low-turbulence tunnels of an NACA 65_3-418, a= 1.0 airfoil section with roughness in the form of carborundum grains applied to the leading edge. Roughness grains having average diameters of 0.0003 and 0.0007 airfoil chord were applied to the leading edge of the wing, and lift and drag measurements were made for a range of Reynolds numbers from 0.23 to 3.0 x 10^6. From a comparison of data obtained in the present tests with data obtained in tests of the smooth wing, marked reductions in maximum lift coefficient were found to be caused by the roughness throughout the test range of Reynolds number. The drag coefficient at the design lift coefficient increased sharply and the lift-curve slope decreased rapidly at a critical Reynolds number that depended upon the size of the carborundum grains. This critical Reynolds number occurred at approximately 0.50 and 0.70 x 10^6 for the 0.0003- and the 0.0007-chord-diameter roughness grains, respectively. With roughness, a decrease in maximum lift coefficient as great as 0.2, a decrease in lift-curve slope of 0.028, and an increase in drag coefficient at the design lift coefficient of

0.007 were observed at a Reynolds number of 1.0 x 10^6. For the smooth wing at the same Reynolds number, the maximum lift coefficient was 1.19, the lift-curve slope was 0.116, and the drag coefficient was 0.0077. At Reynolds numbers greater than 1.0 x 10^6, the scale effect on the lift and drag characteristics of the section with both degrees of roughness was generally in the same direction as the effect on the lift and drag characteristics of the smooth airfoil. NACA L-82.

PB 94351

Quinn, John H., Jr. and Tucker, Warren A.

Scale and turbulence effects on the lift and drag characteristics of the NACA 65_3-418, a=1.0 airfoil section. Aug 1944. 22p graphs, tables Mi $2.00 Ph $3.75

An investigation in two NACA wind tunnels has determined the effect of Reynolds number and stream turbulence on the lift and drag characteristics of a low-drag airfoil, the NACA 65_3-418, a=1.0 section, particularly at low Reynolds numbers, to give an indication of the performance of low-drag wings in low-scale tests. The results are correlated with similar data for the same airfoil section in the NACA two-dimensional low-turbulence pressure tunnel to provide data over a range of Reynolds number from 0.19 to 9.0 X 10^6. Large increases in minimum drag coefficient were found as the Reynolds number decreased. This effect was particularly marked at Reynolds numbers below 1.5 X 10^6. At Reynolds numbers below 1.5 X 10^6, stream turbulence had little effect on the drag characteristics of the NACA 65_3-418 airfoil section when compared on the basis of test Reynolds number but, at higher Reynolds numbers, stream turbulence had a detrimental effect on drag. Large decreases in maximum lift coefficient were found with decreasing Reynolds number; most of this decrease was encountered at Reynolds numbers above 2.0 X 10^6. Marked differences in maximum lift were apparent between the results obtained at high and low turbulence. When compared on the basis of effective Reynolds number, however, fair agreement was reached between the data obtained under both turbulence conditions. Considerable variation of lift-curve slope with Reynolds number was found. Results at low and high turbulence differed as much as 6 percent but yielded the same value of lift-curve slope at a Reynolds number of approximately 4.0 X 10^6. At Reynolds numbers higher than 4.0 X 10^6, no scale effect on the lift-curve slope was observed over the range tested. In view of the large variations in the lift and drag characteristics found for the NACA 65_3-418 airfoil section over a range of Reynolds number from 0.19 to 9.0 X 10^6, it is thought that the use of low Reynolds number test data relating to low-drag airfoils is unreliable either to estimate full-scale characteristics or to determine the relative merits of airfoil sections at higher Reynolds numbers. NACA L-138.

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PB 94420

Quinn, John H.

Tests of the NACA 65_3-018 airfoil section with boundary-layer control by suction. Oct 1944. 27p drawing, graphs Mi $2.00 Ph $3.75

Tests of the NACA 65_3-018 airfoil section with boundary-layer control by suction have been made in the Langley two-dimensional low-turbulence and Langley two-dimensional low-turbulence pressure tunnels. Slots were tested at 30 and 75 percent and at 45 and 75 percent of the airfoil chord at Reynolds numbers of 1.9 and 6.0 X 10^6. An attempt was made to remove only a moderate amount of air through the slots and to locate the slots so that the low-drag properties of the airfoil could be realized. The results of these tests were compared with results for a plain NACA 65_3-018 airfoil section. A maximum section lift coefficient of 1.85 at a Reynolds number of 6.0 X 10^6 was obtained on the NACA 65_3-018 airfoil section with boundary-layer control when the total amount of air removed corresponded to a flow having free-stream velocity through an area equal to approximately 1.2 percent of the wing area. This lift coefficient was found at approximately the same angle of maximum lift as for the plain airfoil and with suction slots at 45 and 75 percent of the airfoil chord. The surface discontinuity, which would be found with a flush-type sliding door placed at 45 percent of the airfoil chord, would not impair the low-drag properties of this airfoil section. NACA L-209

PB 94266

Rafel, Norman and Sandlin, Charles W., Jr.

Effect of normal pressure on the critical compressive and shear stress of curved sheet. Mar 1945. 15p photo, drawings, graphs, table Mi $1.75 Ph $2.50

Results are presented of tests of two sets of 20 curved-sheet specimens to determine the effect of normal pressure on the critical compressive and shear stress of curved sheet. It was found that normal pressure raised the critical compressive and shear stress of curved sheet except when outward bulging occurred in compression, in which case the critical stress was lowered by normal pressure. NACA L-57.

PB 94282

Reisert, Thomas D.

Frequency of occurrence of critical gust loads on overloaded airplanes. Mar 1945. 19p graphs Mi $1.75 Ph $2.50

Statistical gust-frequency data taken by the National Advisory Committee for Aeronautics were used to determine the effect of overloading an airplane on the frequency of occurrence of gust loads that stress the airplane to or above its design applied bending moment. The analysis was made for three transport-type airplanes operating at cruising power with overloads varying from 0 to 50 per-

cent of the design gross weight. The results are presented in the form of curves of critical gust-load frequency as a function of overload with design gust velocity and wing-weight ratio as parameters. The probability of structural failure was found to increase rapidly with overload. The effect on the critical gust-load frequency of the distribution of overload weight was of equal or greater importance than the effect of the amount of overload. For different airplanes the change in critical gust-load frequency for the same overload condition was concluded to be due to the variation in the ratio of design wing weight to design gross weight and to the variation in mean wing chord. NACA L-73.

PB 94467

Rhode, Richard V.

Correlation of flight data on limit pressure coefficients and their relation to high-speed burbling and critical tail loads. Sep 1944. 33p photos, graphs Mi $2.25 Ph $5.00

Flight data are presented to show that the absolute minimum or limit pressure coefficient on an airfoil is a function mainly of the Mach number for Mach numbers above about 0.3 and for usual flight values of the Reynolds number. The curve of limit pressure coefficient as a function of Mach number is established. The flight data also indicate the rate at which the pressure coefficient decreases with stream Mach number as the limit pressure is approached and when the local Mach number is greater than unity. Recent theoretical results of Garrick and Kaplan are modified and extrapolated in accordance with the flight data at the higher local Mach numbers to the established curve of limit pressure. A tentative working chart for the determination of the compressible-flow pressure distribution and of the lift coefficient beyond which potential flow cannot exist is thus established. The lift coefficients at which potential flow ceases to exist (namely, the lift coefficients at the so-called compressibility burble) appear to be the actual maximum lift coefficients over a certain range of Mach number; that is, the lift coefficients corresponding to the attainment of limit pressure coefficient, as calculated by means of the tentative working chart for the P-47C-1 airplane, are in agreement with the maximum lift coefficients measured in abrupt pull-ups in the range of Mach number from 0.27 to 0.55. Although the material presented does not permit deductions as to the relationship if any, between the maximum lift coefficient and the limit pressure coefficient at the higher values of the Mach number, it seems evident from published results of wind-tunnel tests and other data that at the higher Mach numbers the lift coefficients corresponding to limit pressure coefficient are not, in general, maximums but that they do define a boundary between two types of flow, one of which is turbulent or unsteady. Certain practical implications of the results are discussed by means of applications to the V-n diagram. It is shown that modern fighter airplanes may stall over a considerable range of indicated speed at constant values of the load factor and that, in general, turbulent flow emanating from the wings may exist at almost any point on the V-n diagram within the operating range of altitude. From this result it follows that an important condition of tail loading occurs as a result of the superposition of buffeting load increments on maneuvering loads. The deteriorating influence of skin wrinkles and bulges is also discussed and the necessity of designing smooth wings that do not bulge or wrinkle within the normal operating range of load factor is indicated. NACA L-269.

PB 94424

Ribner, Herbert S.

Field of flow about a jet and effect of jets on stability of jet-propelled airplanes. Apr 1946. 54p graphs, drawings, tables Mi $2.75 Ph $7.50

The flow inclination included outside cold and hot propulsive jets by the turbulent spreading has been derived. Certain simplifying assumptions were employed and the region near the orifice was not treated. The effect of jet temperature on the flow inclination was found to be small when the thrust coefficient is used as the criterion for similitude. The deflection of a jet due to angle of attack has been derived and found to be appreciable but small for normal flight conditions with small normal accelerations. The average jet-induced downwash over a tail plane has been obtained in terms of the geometry of the jet-tail configuration. These results have been applied to the estimation of the effect of the jets on the static longitudinal stability and trim of jet-propelled airplanes. NACA L-213.

PB 94234

Ribner, Herbert S.

Notes on the propeller and slipstream in relation to stability. Oct 1944. 26p graphs Mi $2.00 Ph $3.75

Charts and formulas are presented in convenient form for use in the computation of the effects of propellers on stability. Formulas and curves are given for (a) The propeller "fin effect" in terms of the thrust coefficient; (b) The effect of the wing on the propeller normal force in pitch; (c) The propeller yawing moment due to pitch; (d) The sidewash induced by the propeller in yaw. Formulas are given for the contributions of the direct propeller forces to the airplane pitching moment, yawing moment, and shift in neutral point due to power. NACA L-25.

PB 92651

Richards, E. J. and others.

Tests of a Griffith aerofoil in the 13ft. x 9ft. wind tunnel. Part I, II, III and IV. Mar, 1944. 51p diagrs, graphs Available from Brit-

ish Information Services, 30 Rockefeller Plaza, New York 20, New York $2.65

This report describes tests carried out on a 16 per cent thick Griffith suction aerofoil in the 13ft. 9ft. wind tunnel. Prior to these tests being carried out, the principle involved in the design of these aerofoils had only been justified experimentally by tests on a very small scale in the National Physical Laboratory 4-ft. wind tunnel[1]; the purpose of the present tests was to verify the feasibility of the Griffith "discontinuity" principle on a satisfactory scale, and to obtain quantitative data on the aerofoil characteristics with an without suction, the amount of suction needed to prevent separation and to develop the optimum slot shape and width for maximum efficiency. Part I describes the technique used in the experiments, and the method of interpretation of the results to include in the drag a term to account for the power used to develop the necessary suction. The experiments show that separation of the flow on the surface can be fully prevented on this type of aerofoil by sucking less than half the air in the laminar boundary layer at the design position of the slot. If the flow is turbulent from the wing leading edge, the amount of air that must be sucked away is very little greater than that if the flow is laminar to the slot. In the experiments of Ref. 1, it was found that the flow to the rear of the suction slot remained laminar to the trailing edge of the aerofoil. In the present experiments this was not found to be so, transition to turbulence occurring some distance rear of the slot. Part II of this report describes an investigation of this effect and shows that this instability results from the dynamic instability of the boundary layer along a concave surface, and that it is impossible to design any practicable aerofoil shape over which this instability can be prevented at the Reynolds numbers of flight. Part III of the report extends the investigation of slot design to greater slot widths and less extreme shapes and includes the effect on suction mass flow of premature transition of turbulence forward

In Part IV aerofoil characteristics are discussed both with and without suction, including the velocity distribution over the aerofoil, lift coefficient, pitching moments and hinge moment variation with incidence. The effective drag coefficient, variation is examined and extrapolation to full-scale Reynolds numbers carried out. It is shown that even with turbulent flow aft of the suction slot, a low-drag coefficient may be anticipated at the Reynolds numbers of flight. The effect of nacelles on suction wings is also examined. ARC RM 2148.

PB 94387

Riebe, John M. and Church, Oleta

Wind-tunnel investigation of control-surface characteristics. XXI—Medium and large aerodynamic balances of two nose shapes and a plain overhang used with A 0.40-airfoil-chord flap on an NACA 0009 airfoil. Mar 1945. 50p drawings, graphs, tables Mi $2.50 Ph $6.25

Wind-tunnel tests have been made to investigate the characteristics of an NACA 0009 airfoil with a 40-percent-chord flap having medium and large aerodynamic balances of elliptical and blunt nose shapes and having a plain overhang. The results are presented as aerodynamic section characteristics for several flap deflections with the gap at the flap nose sealed and unsealed. Tests were also made to determine the effectiveness of a tab, which was 20 percent of the flap chord, on the plain sealed flap and on the 35-percent-flap-chord elliptical-overhang flap with gap sealed. The pressure difference across the flap-nose seal was also determined for the plain sealed flap. The results indicate that the slope of the lift-coefficient curve was approximately the same for all sealed-gap conditions, except for the flap with a 50-percent-flap-chord elliptical over hang for which the slope was about 3 percent larger than the average. A 4-percent reduction of slope occurred as a result of unsealing the gap at the flap nose on the plain flap; whereas a 13- to 17-percent reduction occurred as a result on unsealing the gap at the flap nose of the flap with aerodynamic balance. The change in lift with flap defection was found to increase as a result of sealing the gap at the flap nose and of changing the nose shape from elliptical to blunt. The effect of unsealing the gap (except for the plain flap), increasing the balance length, and changing the nose shape from elliptical to blunt was to make the rate of change of flap hinge moment with flap deflection (at small flap deflections) and with angle of attack more positive. Some over-balance was found on the 50-percent-flap-chord overhangs. When the lift was varied by changing the angle of attack at zero flap deflection, the center of lift was at the 24-percent-chard station for all overhangs tested with gap sealed. The center of lift due to angle of attack and that due to flap deflection generally moved rearward as the gap was unsealed. NACA L-175.

PB 94408

Riebe, John M. and McKinney, Elizabeth G.

Wind-tunnel investigation of control-surface characteristics. XXII. Medium and large aerodynamic balances of two nose shapes and a plain overhang used with A 0.20-airfoil-chord flap on an NACA 0009 airfoil. Jun 1945. 54p drawings, graphs, tables Mi $2.75 Ph $7.50

Blunt-nose and elliptical-nose overhangs of 0.35 and 0.50 flap chord and a plain overhang on a flap having a chord of 0.20 airfoil chord have been tested in two-dimensional flow on an NACA 0009 airfoil. The results of the tests are presented as aerodynamic section characteristics for several flap deflections with the gap at the flap nose

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sealed or unsealed. Tests were made also to determine the effectiveness of a tab of 0.20 flap chord on the plain sealed flap and on a sealed flap having an elliptical overhang of 0.35 flap chord. The pressure difference across the flap seal was also determined for the plain sealed flap. The results indicated that the plain sealed flap had the largest lift-curve slope, whereas the slopes for the 0.50-flap-chord overhangs were the same as or slightly larger than for the 0.35-flap-chord overhangs. A reduction in slope caused by unsealing the flap gap increased with balance chord. The change in lift coefficient with flap deflection generally increased when the gap was sealed and when the balance nose shape was changed from elliptical to blunt. Sealing the flap gap generally made the variation of flap hinge-moment coefficient with angle of attack and with flap deflection more negative. Changing the nose shape from blunt to elliptical made the variation of the flap hinge-moment coefficient with angle of attack more negative for the sealed gap and more positive for the unsealed gap. At small flap deflections, the variation of flap hinge-moment coefficient with flap deflection was more negative for the elliptical-nose than for the blunt-nose flap; at large deflections, however, this variation was more negative for the blunt-nose flap. The change of flap hinge-moment coefficient with flap deflection for the unsealed blunt-nose overhang had a larger variation with balance chord than the change of flap hinge-moment coefficient with angle of attack; for the sealed blunt-nose overhang, these variations were about the same in the range of balance chord from 0.35 to 0.50 flap chord. For the sealed and unsealed elliptical-nose overhangs, the change of flap hinge-moment coefficient with angle of attack had a larger variation than the change of flap hinge-moment coefficient with flap deflection. NACA L-196.

PB 94333

Ritchie, Virgil S. and Daniels, Everett J.

Estimation of pressure distributions at subcritical speeds for turrets located on a wing. Jul 1944. 33p drawings, graphs Mi $2.25 Ph $5.00

Current methods that take into account interference and compressibility effects have been used to estimate pressures over and near turrets located on a wing in regions of high interference velocities. Graphical comparisons of measured pressures, available from wind-tunnel tests, and estimated pressures are presented for angles of attack of 0°, 1°, and 4° at Mach numbers up to 0.650. The agreement between measured and estimated pressures indicated that present methods are adequate for predicting approximate critical speeds and for estimating loads at subcritical speeds with sufficient accuracy for design purposes. The methods used in this paper were not applicable at speeds much higher than the critical. NACA L-117.

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PB 95562

Roundy, Robert W.

Replacement of A-1 mobile oxygen generator power group. Sep 1948. 8p drawing Mi $1.25 Ph $1.25

1. Oxygen generators 2. Generators, Diesel driven

PB 94171

Sanders, J. C. and others.

Operating temperatures of a sodium-cooled exhaust valve as measured by a thermocouple. Dec 1943. 26p photos, drawings, graphs, tables Mi $2.00 Ph $3.75

A thermocouple was installed in the crown of a sodium-cooled exhaust valve. The valve was then tested in an air-cooled engine cylinder and valve temperatures under various engine operating conditions were determined. A temperature of 1337° F was observed at a fuel-air ratio of 0.064, a brake mean effective pressure of 179 pounds per square inch, and an engine speed of 2000 rpm. Fuel-air ratio was found to have a large influence on valve temperature, but cooling-air pressure and variation in spark advance had little effect. An increase in engine power by change of speed or mean effective pressure increased the valve temperature. It was found that the temperature of the rear spark-plug bushing was not a satisfactory indication of the temperature of the exhaust valve. NACA E-140.

PB 94327

Schueller, Carl F. and others.

Effect of elevator-profile modifications and trailing-edge strips on elevator hinge-moment and other aerodynamic characteristics of a full-scale horizontal tail surface. Jun 1945. 37p photo, drawings, graphs, table Mi $2.25 Ph $5.00

Results are presented of tests of a full-scale horizontal tail surface made to determine the effect of elevator-profile modifications and trailing-edge strips on the elevator hinge-moment characteristics for elevators having fixed plan form and constant balance. A reduction of 6° in the trailing-edge angle of the elevator produced incremental changes in the slopes of the curves of hinge moment against angle of attack and elevator angle of approximately -0.0026 and -0.0013, respectively. The incremental changes in C_{h_δ} (slope of curve of hinge moment against elevator deflection) due to elevator nose-shape modifications were of about the same magnitude as those predicted by the method presented in NACA ACR No. L4E13; whereas the nose-shape changes had little effect on the values of C_{h_α} (slope of curve of hinge moment against angle of attack). By use of a more blunt nose and a reduced trailing-edge angle, the values of C_{h_α} for the elevator could be reduced from the unsatisfactorily high value of 0.0020 to 0 without affecting the values of C_{h_δ}. Trailing-edge strips were found to be very effective in reducing a positive value

of C_{h_α} but produced an adverse increase in C_{h_δ}. No appreciable loss in trailing-edge-strip effectiveness in producing changes in hinge-moment coefficient occurred up to the maximum test Mach number of 0.65. NACA L-111.

PB 94382

Schueller, Carl F. and Korycinski, Peter F.

Effect of fabric deflection at high speeds on the aerodynamic characteristics of the horizontal tail surface of an SB2D-1 airplane. Jun 1945. 50p photos, graphs Mi $2.50 Ph $6.25

Results are presented on an investigation of a full-scale horizontal tail surface to determine the elevator-fabric deflection at high speeds and the aerodynamic effects of the fabric deflection. Two fabric-covered elevators, differing only in rib spacing, and a solid wooden elevator were tested. The first elevator had a rib spacing of approximately 4 inches. The second elevator had a rib spacing of approximately 8 inches, which is more nearly typical of the spacing currently used. Tests were carried to a maximum Mach number of 0.68 except for model configurations for which the maximum allowable loads were reached at lower speeds. No appreciable fabric deflections occurred for the elevator with 4-inch rib spacing. A maximum fabric bulge of 0.6 inch between ribs was measured for the elevator with 8-inch rib spacing at a Mach number of 0.55, an elevator angle of -3.7°, and an angle of attack of 9.7°. Local failures of the fabric attachment to the elevator ribs occurred. By moving the elevator vent holes from the vicinity of the trailing edge to the leading edge, the bulge was eliminated for these test conditions at the expense, however, of some increase in fabric depression on the pressure side of the elevator. Marked increases in the elevator hinge-moment coefficients occurred as the test Mach number was increased. For the elevator with 4-inch rib spacing the hinge-moment parameter C_{h_α} (rate of change of hinge-moment coefficient with elevator deflection) increased from a value at low speed of -0.005 to a value of -0.009 at a Mach number of 0.68. The effect of fabric deflection for the elevator with 8-inch rib spacing caused an additional adverse increment in hinge-moment coefficient as the speed was increased. The effectiveness of the elevator with 4-inch rib spacing did not change appreciably with Mach number. As a result of fabric deflection, however, the effectiveness of the elevator with 8-inch rib spacing decreases sharply at Mach numbers above 0.56. The adverse effect of fabric deflection on elevator hinge moment was decreased slightly by locating the vent holes in the leading edge rather than at the trailing edge of the elevator. NACA L-170.

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PB 94461

Schuldenfrei, Marvin J.

Wing-tunnel investigation of an NACA 23012 airfoil with a Handley Page slat and two flap arrangements. Feb 1942. 23p drawings, graphs, tables Mi $2.00 Ph $3.75

An investigation was made in the 7- by 10-foot wind tunnel of an NACA 23012 airfoil equipped with a Handley Page slat and a slotted and a split flap. The purpose of the investigation was to determine the aerodynamic section characteristics of this airfoil with and without flaps, as affected by the location of the Handley Page slat. A range of slat-nose locations was investigated both with and without flaps at a constant slat gap, and the effect of slat gap was investigated for the slotted flap deflected 40°. The slat position for maximum lift, polars for slotted and split flaps for the most favorable slat arrangements for maximum lift, and complete section data for the most favorable slat arrangements are included. Contours of slat-nose location are given for maximum lift coefficient, for angle of attack for maximum lift coefficient, and for drag and pitching moments at selected lift coefficients. The Handley Page slat in its optimum position on the plain airfoil increased the maximum section lift coefficient by 0.52 and increased the angle of attack for maximum lift coefficient by about 9°. With either the split or slotted flap deflected, the slat increased the maximum lift coefficient of the airfoil-flap combination by about 0.26 and the angle of attack for maximum lift by about 14°. In all cases the drag coefficient at a given lift coefficient was higher with the slat extended than with the slat retracted. NACA L-261.

PB 94411

Seacord, Charles L. and Ankenbruck, Herman O.

Determination of the stability and control characteristics of a straight-wing, tailless fighter-air-plane model in the Langley free-flight tunnel. Feb 1946. 30p photos, drawings, graphs, tables Mi $2.00 Ph $3.75

An investigation to determine the stability and control characteristics of a straight-wing, tailless fighter model with a pusher propeller designed by the NACA has been made in the Langley free-flight tunnel. The investigation consisted principally of force and flight tests of a powered dynamic model. The effects of tail configuration, center-of-gravity location, and power on the stability and control characteristics of the model were determined. Tests were also made in the Langley 15-foot free-spinning tunnel to determine whether the model would trim at very high angles of attack. The results of the investigation may be

summarized as follows: The general flight characteristics of the model were good and compared favorably with the flight characteristics of good conventional airplane models previously tested in the Langley free-flight tunnel. As the angle of attack was increased, the longitudinal stability of the model increased instead of decreasing as that of tailless airplanes with swept-back wings usually does. Power caused a slight reduction in the longitudinal stability measured at constant power. This reduction in stability, however, did not affect the longitudinal steadiness of the model in flight tests. The model did not show the tendency to trim at very high angles of attack (above the stall) that has been a characteristic of some swept-back tailless airplanes. The lateral flight characteristics of the model with both vertical tails installed were good. The directional stability of the model was satisfactory and was improved by the application of power. The effective dihedral was desirably small and was not appreciably affected by power. The control surfaces of the model provided adequate longitudinal and lateral control. NACA L-199.

PB 94251

Seacord, Charles L., Jr. and Ankenbruck, Herman O.

Effect of wing modifications on the longitudinal stability of a tailless all-wing airplane model. Sep 1945. 22p photos, drawings, graphs Mi $2.00 Ph $3.75

An investigation of the power-off longitudinal stability characteristics of a tailless all-wing airplane model with various wing modifications has been made in the Langley free-flight tunnel. Force and tuft tests were made on the model in the original condition, with the wing tips rotated for washout, with rectangular and swept-forward tips, and with various slat arrangements. Flight tests were made with the original wing and with the original wing equipped with the most promising modifications. The results indicated that changes in tip plan form or rotation of the wing tips did not appreciably reduce the instability at high lift coefficients. Addition of wing slats, however, improved the longitudinal stability at the stall when the slat extended far enough inboard to cover the area that tended to stall first. NACA L-42.

PB 95564

Shearer, Larue S.

Hose assemblies; low pressure (for breathing oxygen). Sep 1948. 2p Mi $1.25 Ph $1.25

I. Hose, Low pressure oxygen

PB 89513

Shtepenko, A.

Narrative of the first commercial flight from Moscow to Chukota (Chukchi Peninsula). n.d. 8f Mi $1.25 Enl Pr $2.50

I. Flying, Commercial—Russia

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PB 94249

Sjoberg, S. A.

Flight tests of two airplanes having moderately high effective dihedral and different directional stability and control characteristics. Oct 1945. 14p drawings, graphs Mi $1.75 Ph $2.50

Flight tests of a twin-engine midwing attack bomber and a single-engine low-wing fighter airplane showed both airplanes to have moderately high effective dihedral but different directional stability and control characteristics. The attack bomber and a high degree of directional stability and the variation of rudder force required for trim with speed was small. The fighter had considerably less directional stability than the attack bomber and the rudder forces required for trim as the speed and engine power were varied were relatively high. In flying the attack bomber, pilots did not observe any unusual or undesirable lateral control characteristics. On the other hand pilots reported control coordination was difficult with the fighter when changing speed or power, with the result that inadvertent sideslipping occurred. When this motion occurred the airplane tended to roll and the pilot was required to apply aileron forces continually. Pilots also considered the rough-air control characteristics objectionable because of the aileron forces that were required when inadvertent sideslipping occurred. When the rudder forces were reduced with a spring-tab rudder, pilots noted a marked improvement in the lateral and directional control characteristics. NACA L-40.

PB 94383

Swanson, Robert S. and Crandall, Stewart M.

Analysis of available data on the effectiveness of ailerons without exposed overhang balance. May 1944. 30p drawings, graphs, tables Mi $2.00 Ph $3.75

A considerable amount of two-and three-dimensional data on the effectiveness of ailerons without exposed overhang balance has been collected and analyzed. The trends indicated by the analysis have been summarized in the form of a few approximate rules concerning the effectiveness parameter $\Delta\alpha/\Delta\delta$ (at constant lift): Thickening and beveling the trailing edge (as measured by the trailing-edge angle ϕ) will generally reduce the effectiveness about 0.3 percent per degree of bevel for ailerons sealed at the hinge axis and about 0.6 percent per degree of bevel for unsealed ailerons. A 0.005c gap at the hinge axis usually reduces the effectiveness approximately 17 percent for flap chord ratios of 0.2. This percentage increases as the flap chord ratio is reduced. The effectiveness is about 14 percent lower at aileron deflections of 20° than at aileron deflections of 10°. At large angles of attack ($\alpha = 10°$) and for chord ratios of about 0.2, positively deflected ailerons are approximately 20 percent less effective than negatively deflected ailerons. The deflection of

partial-span flaps has no consistent effect on the effectiveness. Increases in Mach number and forward movement of the transition point decrease the aileron effectiveness. No consistent deviation of the experimentally determined values of static rolling moments from those values predicted by the lifting-line-theory method could be detected. Because the several factors neglected in the lifting-line theory apparently are fairly small and counteract one another, on the average, no additional correction need be applied. NACA L-171

PB 94262

Swanson, Robert S. and Priddy, E. LaVerne.

Lifting-surface-theory values of the damping in roll and of the parameter used in estimating aileron stick forces. Aug 1945. 51p photos, graphs, table Mi $2.75 Ph $7.50

An investigation was made by lifting-surface theory of a thin elliptic wing of aspect ratio 6 in a steady roll by means of the electromagnetic-analogy method. From the results, aspect-ratio corrections for the damping in roll and aileron hinge moments for a wing in steady roll were obtained that are considerably more accurate than those given by lifting-line theory. First-order effects of compressibility were included in the computations. The results obtained by lifting-surface theory indicate that the damping in roll for a wing of aspect ratio 6 is 13 percent less than that given by lifting-line theory and 5 percent less than that given by lifting-line theory with the edge-velocity correction derived by Robert T. Jones applied. The results are extended to wings of other aspect ratios. In order to estimate aileron stick forces from static windtunnel data, it is necessary to know the relation between the rate of change of hinge moments with rate of roll and rate of change of hinge moments with angle of attack. The values of this ratio were found to be very nearly equal, within the usual accuracy of wind-tunnel measurements, to the values estimated by using the Jones edge-velocity correction, which for a wing of aspect ration 6 gives values 4.4 percent less than those obtained by lifting-line theory. An additional lifting-surface-theory correction was calculated but need not be applied except for fairly large high-speed airplanes. Simple practical methods of applying the results of the investigation to wings of other plan forms are given. No knowledge of lifting-surface theory is required to apply the results. In order to facilitate an understanding of the procedure, an illustrative example is given. NACA L-53.

PB 94325

Sweberg, Harold H. and others.

Langley full-scale tunnel investigation of the factors affecting the directional stability and trim characteristics of a fighter-type airplane. Nov 1945. 96p photos, drawings, graphs, table Mi $4.25 Ph $12.50

Tests were made in the Langley full-scale tunnel of the Grumman XF6F-4 airplane in order to investigate the factors that affect the directional stability and trim characteristics of a typical fighter-type airplane. Eight representative flight conditions were investigated in detail. The separate contributions of the wing-fuselage combination, the vertical tail, and the propeller to the directional stability of the airplane in each condition were determined. Extensive airflow surveys of sidewash angle and dynamic-pressure ratio along a line coincident with the rudder hinge line were made for each condition investigated to aid in evaluating the slipstream effects. The data obtained from the air-flow surveys were also used to investigate methods for calculating the contribution of the vertical tail to the airplane directional stability. The results of the tests showed that, for the conditions investigated, the directional stability of the airplane was smallest for the gliding condition with flaps retracted and was greatest for the wave-off condition with flaps deflected 50°. The variation of sidewash angle at the vertical tail with angle of yaw was destabilizing for all conditions investigated. Propeller operation increased the magnitude of the destabilizing sidewash but, at small angles of yaw, also increased the dynamic pressure at the vertical tail sufficiently to make the combined effect stabilizing. The lateral displacement of the slipstream with respect to the vertical tail at angles of yaw larger than approximately ±10° caused a reduction in the contribution of the vertical tail to the airplane directional stability at positive angles of yaw and an increase at negative angles of yaw. Flap deflection tended to increase the directional stability of the airplane regardless of the condition of propeller operation. The rudder deflection required for directional trim was greatest for the wave-off condition with the flaps deflected 50°. The large changes in the directional trim of the airplane resulting from propeller operation are primarily due to the effects of the slipstream on the wing-fuselage combination and on the vertical tail and are only secondarily due to the direct effects of the propeller forces. NACA L-109.

PB 94357

Sweberg, Harold H. and Dingeldein, Richard C.

Summary of measurements in Langley full-scale tunnel of maximum lift coefficients and stalling characteristics of airplanes. Apr 1945. 85p photos, drawings, graphs, tables Mi $3.75 Ph $11.25

The results of measurements in the Langley full-scale tunnel of the maximum lift coefficients and stalling characteristics of airplanes have been collected. The data have been analyzed to show the nature of the effects on maximum lift and stall of

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wing geometry, fuselages and nacelles, propeller slipstream, surface roughness, and wing leading-edge appendages such as ducts, armament, tip slats, and airspeed heads. Comparisons of full-scale-tunnel and flight measurements on maximum lift and stall are included in some cases and the effects of the different testing techniques on the maximum-lift measurements are also given. The results indicated that large improvements in the maximum lift and stalling characteristics of airplanes can be obtained by careful attention to detail design. Surface roughness, wing leakage, and the improper location of ducts, armament, and slats at the leading edge of a wing have been found to cause serious losses in the maximum lift coefficient in an airplane. Wings having high taper ratios and large amounts of sweepback have been shown to be subject to poor stalling characteristics because they are susceptible to tip stalling. The proper combinations of washout and changes in camber and wing thickness from root to tip with taper will usually produce satisfactory stalls on wings subject to tip stalling. A comparison of full-scale-tunnel and flight measurement of the maximum lift coefficient of an airplane showed that satisfactory agreement may be obtained if the comparison is made under similar test conditions, such as Reynolds number, slipstream, and time rate of change of angle of attack. NACA L-145.

PB 94250

Tamburello, Vito and others.

Wind-tunnel investigation of control-surface characteristics of plain and balanced flaps on an NACA 0009 elliptical semispan wing. Feb.1946. 45p drawings, graphs, tables MI $2.50 PH $6.25

A series of force tests have been made in the Langley 4-by 6-foot vertical tunnel on an NACA 0009 elliptical semi-span wing equipped with a flap either 50 percent of the wing area or 30 percent of the wing area. The 30-percent-area flap was tested as a plain flap and with 35-percent-flap-chord and 50-percent-flap-chord elliptical-nose overhangs. Results of the investigation indicated that the lift-curve slope increased at large angles of attack for small flap deflections. This tendency was found to be characteristic of wings of low aspect ration. The effects of the gap and aerodynamic balance on the lift-curve slope were small and inconsistent. The hinge-moment characteristics obtained in the present investigation indicated that, although the effect of the gap was small, the rate of change of hinge-moment coefficient with angle of attack increased positively and the rate of change of hinge-moment coefficient with flap deflection increased negatively when the gap was sealed. Calculated lift-curve slopes, modified by the Jones edge-velocity correction, were higher than measured values except for one case calculated from extrapolated section data. Calculated values of hinge-moment parameters were always considerably more negative than measured values when determined from lifting-line theory solutions and modified by the Jones edge-velocity correction. Application of a streamline-curvature correction, derived for elliptical wings, brought the calculated values of the variation of hinge-moment coefficient with angle of attack into good agreement with measured values. At the present time, however, no stream-line-curvature correction is available for the variation of hinge-moment coefficient with flap deflection. NACA L-41

PB 95504

Taylor, G. I.

Air resistance of a flat plate of very porous material. Jan 1944. 4p diagr Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.35

1. Plates—Air resistance—Measurements 2. Boundary layer—Control 3. Airfoils—Boundary layer 4. ARC RM 2236

PB 94225

Tetervin, Neal

Method for the rapid estimation of turbulent boundary-layer thicknesses for calculating profile drag. Jul 1944. 19p graphs MI $1.75 Ph $2.50

An analysis is developed that makes it possible to integrate von Kármán's boundary-layer momentum equation directly. For this purpose the skin-friction coefficient is expressed as a function of the Reynolds number based on the boundary-layer momentum thickness and the boundary-layer shape is assumed to be constant. The integrated equation permits the boundary-layer momentum thickness at the airfoil trailing edge to be rapidly determined for the estimation of airfoil profile-drag coefficients. NACA L-16.

PB 94348

Theodorsen, Theodore

Airfoil-contour modifications based on e-curve method of calculating pressure distribution. Jul 1944. 23p drawings, graphs, tables MI $2.00 Ph $3.75

A method, based directly on the so-called ϵ-curve method published originally in 1931 in NACA Report No. 411, is presented for use in making modifications to the shape and pressure distribution of a given airfoil. In particular, it may be desirable to remove excessive irregularities or local peaks in the distribution. In this process it may be required that certain parameters of the airfoil be kept unchanged; for instance, the angle of zero lift, the ideal lift coefficient, or the moment coefficient. From an academic viewpoint, an altered distribution cannot be "prescribed" because compliance with the requirement of maintaining a Laplacian flow field is involved. A prescribed distribution can therefore not be obtained by

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iteration. The process, however adequate, is necessarily one of qualitative modifications. Several numerical examples illustrating the use of the method are given in the appendix. NACA L-135.

PB 94436

Theodorsen, Theodore and Regier, Arthur.

Experiments on drag of revolving disks, cylinders and streamline rods at high speeds. Jun 1944. 53p photos, graphs, table Mi $2.75 Ph $7.50

An experimental investigation concerned primarily with the extension of test data on the drag of revolving disks, cylinders, and streamline rods to high Mach numbers and Reynolds numbers is presented. A Mach number of 2.7 was reached for revolving rods with Freon 113 as the medium. The tests on disks extended to a Reynolds number of 7,000,000. Parts of the study are devoted to a reexamination of the von Kármán-Prandtl logarithmic resistance law and the Ackeret-Taylor supersonic drag formula and conditions for their validity. The tests confirm, in general, earlier theories and add certain new results. A finding of first importance is that the skin friction does not depend on the Mach number. Of interest, also, are experimental results on revolving rods at very high Mach numbers, which show drag curves of the type familiar from ballistics. A new result which may have general applicability is that the effect of surface roughness involves two distinct parameters, particle size and particle unit density. The particle size uniquely determines the Reynolds number at which the effect of the roughness first appears, whereas the particle unit density determines the behavior of the drag coefficient at higher Reynolds numbers. Beyond the critical Reynolds number at which the roughness effect appears, the drag coefficient is found to be a function of unit density. In the limiting case of particle "saturation", or a maximum density of particles, the drag coefficient remains constant as the Reynolds number is increased. NACA L-226.

PB 81523

Thom, A. and Owen, P. R.

Velocities and speeds through a shock wave. Apr 1943. 9p photos, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.70

The relation between the velocity vectors on the two sides of a shock wave are presented in a graphical form. Two cases are considered, namely a single straight or oblique shock and a double shock. The curves can be used in a variety of ways; in particular, where photographs are available, it is possible with their aid to deduce the speeds and pressures in the vicinity of the shock waves. ARC RM 2044.

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PB 94265

Toll, Thomas A. and Ivey, Margaret F.

Wind-tunnel investigation of a rectangular NACA 2212 airfoil with semispan ailerons and with nonperforated, balanced double split flaps for use as aerodynamic brakes. Apr 1945. 67p photos, drawings, graphs, tables Mi $3.00 Ph $8.75

Tests have been made in the Langley 7-by 10-foot tunnel to determine the applicability of nonperforated, balanced double split flaps for use as aerodynamic brakes. Information was desired on the braking power of the flaps as well as on the effectiveness and the stability of a conventional trailing-edge aileron located immediately behind the flaps. A rectangular 10- by 60-inch wing model of NACA 2212 airfoil section was used for the tests. Results were obtained for flat-plate flaps with no wing cut-outs and for flaps having Clark Y sections with cut-outs made in the wing to simulate the space left open by the deflected flaps. The flap deflections, the chordwise location, and the gaps between the flaps and the airfoil contour were varied over wide ranges in order to determine the optimum configuration. In addition to the force tests, an investigation was made to determine any buffeting tendencies of the aileron. Silk tufts and a flexible torque rod were used for these tests. The drag was only slightly lower for the model having airfoil-section flaps and wing cut-outs than for the model having flat-plate flaps and no cut-outs in the wing; for both arrangements the drag was higher than that obtained in previous tests of an NACA 23012 airfoil with full-span, 0.20-airfoil-chord, perforated double split flaps. The aileron effectiveness was low in either case, except when the flap gaps were equal to about 20 percent of the wing chord and when the noses of the flaps were at least 80 percent of the chord from the leading edge of the wing. Although the entire model showed some tendency to shake, tufts indicated that the air flow over the aileron generally was smooth. Tests of the aileron attached to a flexible torque rod indicated almost no tendency for the aileron to shake; however, when the flap gaps were 15 percent of the wing chord or less, the aileron acted as though it were overbalanced and usually tended to float against the stops for either positive or negative deflections. NACA L-56.

PB 94491

Tribus, Myron and Boelter, L. M. K.

Investigation of aircraft heaters. II. Properties of gases. Oct 1942. 28p graphs, tables Mi $2.00 Ph $3.75

1. Airplanes—Heaters 2. Exhaust gases—Properties 3. NACA W-9

PB 94177

Turner, L. Richard and Humble, Leroy V.

Flame-visibility tests with individual exhaust stacks. Feb 1944. 37p photos, drawings, graphs, table Mi $2.25 Ph $5.00

Tests were made on a Wright 1820-G single-cylinder engine to determine the effect of operating variables and the effect of shape and size of the exhaust stack on the visibility of the exhaust gases for individual-stack installations. Estimates of the relative brightness of the exhaust flames were made by photographic means. Flame damping was improved by decrease in nozzle-exit area, by increase in stack length, and by reduction in hydraulic diameter of the exhaust jets. When the throat section of the nozzle was lengthened and a bend introduced in this section to prevent view of the interior of the stack, a large decrease in exhaust visibility occurred. A simulated acceptance test was set up. None of the experimental stacks met the imposed visibility test under all conditions. The background conditions in these tests were thought to be more severe than would be obtained in flight. Until a quantitative specification of the limit of flame luminosity or background brightness and uniformity is made, the effectiveness of a flame-damping stack must be determined by flight test. The limitations of photographic techniques and simulated visibility tests are discussed. NACA E-147.

PB 95511

Tye, W. and Montagnon, P. E.

The estimation of wing structure weight. Oct 1941. 21p graphs Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $1.30

The estimation of wing weight rapidly and with reasonable accuracy is an important problem in aeroplane design. In order to achieve accuracy it is necessary to revise statistical formulae from time to time in the light of new data presented by current design practice. A brief historical survey is given in Part I of some empirical formulae which have been suggested for estimating wing structure weight. These are all shown to be similar in form, but the constants employed are naturally representative of contemporary weights. They do, however, point to a more general formula for wing weight in terms of four parameters, viz.—all-up weight, wing area, flight factor and maximum speed. The coefficients in this expression are determined by current weight data for monoplanes, two classes—single-engined and twin-engined—being distinguished. A formula is developed for the wing weight of metal monoplanes in terms of the parameters quoted above. The expression can be rapidly evaluated in any given case. It shows, further, the advantage gained by a twin-engined over a single-engined design, other things being equal. In Part II an estimate is made of the weight saving from an increase in taper ratio, maintaining constant performance and employing measures to prevent tip stalling at high tapers, for a twin-engined aeroplane. There are two main conclusions to be drawn from this analysis—(a) The saving in wing weight resulting from an increase in taper is fairly small. For the design considered the 4:1 taper wing was 450 lb. lighter than the 2:1 taper wing out of a total all-up weight of 40,000 lb. A further indirect saving would probably result from the larger stowing spaces available in the root end of a highly tapered wing, which would permit a better distribution of load. (b) The "essential" structure weights found are considerably lower than actual weights occurring in practice. This emphasizes the need for economizing in the weights of the necessary but "incidental", parts, such as fittings, and for attempting, so far as is practicable, to grade the size of spar flanges and thickness of cover, in such a way that the full strengths of the materials are employed throughout. In Part III typical aeroplanes of the single-engined and wing-engined type are considered, and quantitative variations of wing weight with aspect ratio in specific cases are evaluated. Applications of the results are made to correct the empirical formula of Part I for wing weight which does not allow for variations of aspect ratio. The variation of wing weight with aspect ratio is shown to be comparatively large and to be more important for higher aspect ratios. Combined with the empirical formula of Part I the results give a good estimate of wing weight. Such an estimate seems to be more reliable for wing-engined than for single-engined aeroplanes. A simple formula for estimating wing weight in terms of span is given for quick rough results. ARC MR 2080.

PB 94699

U. S. Air Force.

Alighting gear and component parts: Inspection and repair of landing gear struts—A.O. Smith. Jun 1948. 1p Mi $1.25 Ph $1.25

1. Landing gear—Struts

PB 87744r

U. S. Air Force.

Beech: Installation of continuous-flow oxygen system—C-45F. Jun 1948. 4p tables Mi $1.25 Ph $1.25

PB 89631

U. S. Air Force.

Boeing: Removal and testing of rudder boost cylinder assembly—B-50A. Mar 1948. 2p Mi $1.25 Ph $1.25

1. Rudders, Aircraft—Testing

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PB 89633

U. S. Air Force.
Consolidated-vultee: Grounding of L-13 series aircraft. Mar 1948. 1p Mi $1.25 Ph $1.25
1. Airplanes—Grounding

PB 87265s

U. S. Air Force.
Cumulative supplement list of applicable publications: USAF Model C-47B and D, aircraft and equipment. Nov 1947. 10p Mi $1.25 Ph $1.25
1. AAF TO 01-40ND-01A

PB 87745

U. S. Air Force.
Cumulative supplement list of applicable publications USAF series AT-11 aircraft and equipment. Jan 1948. 10p tables Mi $1.25 Ph $1.25
1. Aeronautical equipment—Catalogs

PB 88276

U. S. Air Force.
Curtiss: Flight restrictions—C-46E and C-46F. Jan 1948. 1p Mi $1.00 Ph $1.00
1. Tail surfaces—Vibration

PB 87748

U. S. Air Force.
Douglas: Use of "off-neutral" control surface locks—C-47 series, TC-47 series, C-53 series, and C-117 series. Jan 1948. 6p drawings, tables Mi $1.25 Ph $1.25
1. Aircraft—Controls

PB 88859

U. S. Air Force.
Fairchild: Modification rudder pedals—C-82A. Feb 1948. 3p drawings Mi $1.25 Ph $1.25
1. Rudders, Aircraft—Design

PB 94696

U. S. Air Force and U. S. Bureau of Aeronautics.
Handbook: Overhaul instructions for tail wheel shimmy damper, part No. 2124. (Saval). Jun 1948. 6p photo, drawings Mi $1.25 Ph $1.25
1. Tail wheels—Maintenance and repair
2. Dampers, Shimmy

PB 85318r

U. S. Air Force.
Inspection and functional test of USAF material and equipment in storage. Nov 1947. 9p table Mi $1.25 Ph $1.25

PB 88722r

U. S. Air Force.
Instructions for installation, operation, and inspection of aircraft personnel T4E1 or M1 catapult, with cartridge. Mar 1948. 5p photos Mi $1.25 Ph $1.25

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PB 80440s2

U. S. Air Force.
List of applicable publications: C-45F aircraft and equipment. Oct 1947. 14p tables Mi $1.75 Ph $2.50

PB 86988r

U. S. Air Force.
Lockheed: Flight restrictions—all P-80 series. May 1948. 2p Mi $1.25 Ph $1.25

PB 88863

U. S. Air Force.
Northrop: Installation of junction box hinges and terminal strip protector—P-61A, P-61B, TP-61B, P-61C, and F-15A. Feb 1948. 2p photos, drawing Mi $1.25 Ph $1.25
1. Boxes, Junction

PB 88852r

U. S. Air Force and U. S. Bureau of Aeronautics.
Parts catalog: Hydraulic brakes, segmented rotor type. (Bendix). Jun 1948. 4p drawings, tables Mi $1.25 Ph $1.25

PB 86990r

U. S. Air Force and U. S. Bureau of Aeronautics.
Parts catalog: Hydraulic brakes, shoe-type. (Bendix). Mar 1948. 3p drawings, tables Mi $1.25 Ph $1.25

PB 94685

U. S. Air Force.
Parts catalog: Hydraulic electric pressure switch, model 1668-D. (Hydro-Aire). Jun 1948 4p photo, drawings, table Mi $1.25 Ph $1.25
1. Switches, Electric 2. Switches, Pressure 3. Hydraulic controls

PB 87127r

U. S. Air Force.
Parts catalog: Landing wheels, multiple disc brake type. (Goodyear). Aug 1948. 2p drawings, tables Mi $1.25 Ph $1.25

PB 87272s

U. S. Air Force and U. S. Bureau of Aeronautics.
Parts catalog: Landing wheels single disc brake type. Dec 1947. 21p Mi $2.00 Ph $3.75
1. Landing gear—Wheels

PB 85207r

U. S. Air Force and U. S. Bureau of Aeronautics.
Parts catalog: Model P-80B airplanes. Oct 1947. 89p drawings, tables Mi $3.75 Ph $11.25

PB 87286r

U. S. Air Force.
Parts catalog: Nacelle junction box, type WG111A3. (Minneapolis-Honeywell). Dec 1947. 2p drawings, tables Mi $1.25 Ph $1.25

PB 85207r3

U. S. Air Force and U. S. Bureau of Aeronautics.
Parts catalog: USAF model P-80B aircraft. Jan 1948. 244p photos, drawings, tables Mi $9.00 Ph $31.25

PB 94688

U. S. Air Force and U. S. Bureau of Aeronautics.
Parts catalog for tail wheel assembly, part No. 3000. (Scott). Aug 1948. 3p photos, tables Mi $1.25 Ph $1.25
1. Tail wheel—Maintenance and repair

PB 94698

U. S. Air Force.
Propellers and accessories: Installation of replaceable type contact points—Curtiss propeller synchronizer collector assembly. Apr 1948. 2p drawings, table Mi $1.25 Ph $1.25
1. Synchronizers—Maintenance and repair

PB 88281

U. S. Air Force.
Republic: Replacement of flap links—YP-84A and P-84B. Jan 1948. 2p tables Mi $1.00 Ph $1.00
1. Flaps, Aircraft—Maintenance and repair

PB 88281r

U. S. Air Force.
Republic: Replacement of flap links—YP-84A and P-84B. Mar 1948. 2p Mi $1.25 Ph $1.25
1. Flaps, Aircraft—Maintenance and repair

PB 91768r

U. S. Air Force.
Restriction of F-80B, F-80C, YF-84A, and F-84B aircraft to VFR. Aug 1948. 2p Mi $1.25 Ph $1.25

PB 94973

U. S. Air Force.
Set: Inspection, procurement, field office. Aug 1948. 14p tables Mi $1.75 Ph $2.50
1. Aeronautical equipment 2. Aircraft—Inspection

PB 94983

U. S. Air Force.
Set: Instructional, laboratory, servomechanism. Jun 1948. 2p table Mi $1.25 Ph $1.25
1. Laboratories, Aeronautical 2. Servomechanisms

PB 94985

U. S. Air Force.
Set: Service, general, laboratories. Jun 1948. 10p tables Mi $1.25 Ph $1.25
1. Laboratories, Aeronautical

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PB 87288r

U. S. Air Force.
Storage of aircraft: P-51 and F-6. Apr 1948. 10 Mi $1.25 Ph $1.25

PB 94697

U. S. Air Force.
Storage of engine mounting system vibration isolators. Apr 1948. 1p Mi $1.25 Ph $1.25
1. Engines, Aircraft—Mounts 2. Isolaters

PB 87152r

U. S. Air Force.
Test flights. Nov 1947. 2p Mi $1.25 Ph $1.25
1. Airplanes—Flight tests

PB 95296

U. S. Air Force and U. S. Navy Dept.
Wheel: Tail, solid rubber tire. Air Force-Navy aeronautical standard. Sep 1948. 1p drawing, table Mi $1.25 Ph $1.25
1. Tail wheels

PB 94301

U. S. National Advisory Committee for Aeronautics. Flight Research Maneuvers Section.
Flight studies of the horizontal-tail loads experienced by a modern pursuit airplane in abrupt maneuvers. Jun 1944. 41p photos, drawings, graphs, tables Mi $2.50 Ph $6.25
Flight measurements were made on a modern pursuit airplane to determine the approximate magnitude of the horizontal tail loads in accelerated flight. In these flight measurements, pressures at a few points were used as an index of the tail loads by correlating these pressures with complete pressure-distribution data obtained in the NACA full-scale tunnel. In addition, strain gages and motion pictures of tail deflections were used to explore the general nature and order of magnitude of the fluctuating tail loads in accelerated stalls. The results indicated that, if the airplane were not stalled, a total up load of 5700 pounds would be experienced on the horizontal tail in an 8g pull-up and that, with power on, this load would be distributed unsymmetrically with about 800 pounds more up load on the left stabilizer than on the right. When stalling occurred there was an initial abrupt increase in the up tail load of the order of 100 percent of the previous load, which was followed by repeated load and stress variations due to tail buffeting. Under the conditions of tail buffeting, the possibility of excessive stresses due to resonance was indicated. NACA L-93.

PB 94414

U. S. National Advisory Committee for Aeronautics. Stability Research Division.

Interim report on the stability and control of tailless airplanes. Oct 1944. 52p drawings, graphs Mi $2.75 Ph $7.50

Problems relating to the stability and control of tailless airplanes are discussed in consideration of contemporary experience and practice. In the present state of the design of tailless airplanes, it appears that: (1) Sweepback affords a method of supplying tail length for directional and longitudinal stability and control and allows the utilization of a high-lift flap but introduces undesirable tip stalling tendencies that must be overcome before the advantages of sweepback can be realized. (2) The damping in pitching appears to have little effect on the longitudinal behavior of the airplane provided the static margin is never permitted to become negative. (3) The directional stability must be as great as for conventional airplanes if the same requirements regarding satisfactory stability and control characteristics are to be adhered to. (4) The influence of the lateral resistance and the damping in yawing on the flying qualities is somewhat obscure; however it is believed that these parameters will be of secondary importance if adequate directional stability is supplied. (5) On account of the difficulties encountered in obtaining adequate stability and control with tailless airplanes, it appears that a thorough re-evaluation of the relative performance to be expected from tailless and conventional designs should be made before proceeding farther with stability and control studies. NACA L-202.

PB 94542

U. S. National Bureau of Standards. High Voltage Laboratory.

Protection of nonmetallic aircraft from lightning. I. General analysis. Sep 1943. 16p drawings, tables Mi $1.75 Ph $2.50

I. Airplanes—Lightning protection 2. NACA W-59

PB 94543

U. S. National Bureau of Standards. High Voltage Laboratory.

Protection nonmetallic aircraft from lightning. II. Lightning conductor materials. Oct 1943. 35p photos, graphs, tables Mi $2.25 Ph $5.00

This report summarizes information of the types of material which can be used for lightning conductors on nonmetallic aircraft and reports the results of experiments on the more important properties of such materials. Tables I and II give the weight per foot and the widths of sheet metal required for certain assumed surge-current carrying capacities. The section on Application gives some preliminary suggestions as to the application of such lightning conductors. The experimental work to date suggests the following tentative conclusions: 1. Aluminum has greater surge-carrying capacity than copper of the same weight. 2. Rolled sheet metal has more surge-carrying capacity than sprayed metal of the same weight. 3. Aluminum strips 0.002 inch thick can be molded in the surface of tego-bonded plywood with excellent mechanical and electrical properties. 4. Metal strips fastened by an elastic cement may give trouble if subjected to alternating strains. 5. Sprayed aluminum adheres well to properly roughened plywood surfaces. NACA W-60.

PB 94545

U. S. National Bureau of Standards. High voltage Laboratory.

Protection of nonmetallic aircraft from lightning III. Electrical effects in glider towlines. Mar 1944. 78p photos, drawings, graphs, tables Mi $3.50 Ph $10.00

A glider tow operating in or near a thunderstorm is exposed to three distinct types of electrical hazard: A direct lightning stroke may enter at one of the aircraft, pass along the towline and leave from the other aircraft. The chance of this occurring is decidedly greater than the probability that an isolated airplane will be struck. If a textile towrope is used, the lightning current will pass as an arc in the air near the rope, but the likelihood that the rope will be seriously damaged is rather slight, particularly if the rope is protected by suitable metal arcing rings at the two ends. If a metal towrope is used, the current will flow in it, but will not damage it provided the cable diameter exceeds 0.14 inch. A lightning stroke may pass directly to some intermediate point on the towline. Such a stroke might sever a single metal cable unless its diameter is greater than 0.35 inch (an undesirably heavy line). The use of a lighter metal core protected by a layer of insulation and an outer metal braid gives a lighter and more arc-resistant construction, and also gives the possibility of two-wire telephonic communication between the aircraft. The tendency for the point of contact to be blown along the cable may be enough to prevent the severing of even a lighter metal cable. Textile rope appears to be immune to such a direct hit, except perhaps under very rare conditions. Even if no lightning stroke occurs, an electric current of appreciable magnitude will flow in the towline all the time the tow is within a few miles of the thunderstorm. This current will not harm a metal cable but may be very damaging to a textile rope. In this report a basis is worked out for making quantitative estimates of the hazard from such towline currents for any assumed combinations of storm intensity and cable resistance. If the rope could be covered with a nonporous, waterproof, elastic insulating "skin" which would keep it insulating under all conditions, this would provide a preferable solution to the problem, but no such coating has yet been found. The most success-

ful preventive measure thus far tried is to impregnate the rope with colloidal graphite (aduadag) so that it will remain, under all conditions, a sufficiently good electrical conductor to carry this current without being overheated. Further measurements should be made on the electrical and thermal properties of nylon ropes, made conducting under factory conditions. NACA W-62.

PB 95537

U. S. Naval Aircraft Factory, Philadelphia.
Debad and assembly drawings for model N3N trainer aircraft as of Dec 1947. 630f drawings Mi $9.00 Enl Pr $81.25
I. Airplanes, Trainer

PB 94145

Waldron, C. D.
Pressure drop in tank and float vent tubes on diving airplanes. Jan 1939. 40p photos, drawings, graphs Mi $2.25 Ph $5.00

Laboratory equipment was set up that simulated the tank and float venting conditions that exist on diving airplanes undergoing rapid changes in altitude. Data from the laboratory tests are presented as curves that give the difference in pressure between the outside and the inside of tanks and floats on airplanes having a rate of change of altitude of 300, 400, and 500 miles per hour when descending from altitudes of 10,000 to 40,000 feet. The tanks and floats had volumes of 10, 20, 40, and 60 cubic feet and were equipped with venting tubes having inside diameters of 13/32, 21/32, and 37/32 inch and lengths of 2 and 12 feet. The laboratory results were checked against results from a flight test. A procedure was developed for calculating the pressure drop that exists in the venting tubes on diving airplanes. NACA E-114.

PB 94522

Wesko, John R.
Pressure loss in ducts with compound elbows. Feb 1943. 42p photos, drawings, graphs Mi $2.50 Ph $6.25

Results are presented of measurement of the pressure drop in ducts produced by two equal 90° elbows arranged at three different angular positions to each other, placed adjacent to each other, or separated by straight ducts of various lengths. The measured pressure drops have been analyzed and correlated, and the results are summarized in the form of curves adapted for design computations of pressure drop in compound-duct bends. NACA W-39.

PB 94394

Whitcomb, Richard T.
Relation between spanwise variations in the critical mach number and spanwise load distributions. Dec 1944. 8p drawings Mi $1.25 Ph $1.25

Data are presented to show the changes that occur in the spanwise load distributions on wings when the critical Mach number is exceeded. These data indicate that the magnitude of the changes in spanwise load distribution varies with the magnitude of the spanwise variation in the critical Mach numbers of the sections. Means of reducing the magnitudes of such changes are considered. NACA L-182.

PB 94233

White, Maurice D.
Effect of power on the stick-fixed neutral points of several single-engine monoplanes ad determined in flight. Aug 1944. 8p drawings, graphs, tables Mi $1.25 Ph $1.25

The effect of power on the variation of stick-fixed neutral point with lift coefficient is presented for several single-engine monoplanes. The tests were made with power off and with rated, climbing, or wave-off power and with flaps neutral and deflected. The results show that with power off and flaps neutral or deflected the neutral point remained fixed or shifted rearward with increasing lift coefficient. With power on, the neutral point usually shifted forward of the power-off location. With flaps neutral and for lift coefficients up to 1.2, the maximum forward shift of the neutral point, with respect to the power-off location at low lift coefficients, was 4 to 5 percent of the mean aerodynamic chord (M.A.C.) in most cases and 8 percent in one case. For lift coefficients from 0.6 to 1.8, the maximum shift of neutral point due to power and flap deflection was about 7 percent M.A.C. forward of the location for low lift coefficients with power off and flaps neutral. NACA L-24.

PB 94332

White, Maurice D.
Estimation of stick-fixed neutral points of airplanes. Mar 1945. 20p drawings, graphs, tables Mi $1.75 Ph $2.50

A method is given for calculating the stick-fixed neutral point of an airplane with propeller windmilling, flaps neutral, and landing gear retracted. This method differs from those formerly used principally in the procedure for estimating the effect of the windmilling propeller. Comparison of the neutral points predicted by this method with neutral points obtained in flight tests indicates good agreement at low lift coefficients. The methods presented, in conjunction with the results given in NACA CB No. L4H01 "Effect of power on the stick-fixed neutral points of several single-engine monoplanes as determined in flight," should be useful in estimating the stick-fixed neutral points of new designs for all flight conditions. NACA L-116.

—62231

PB 92606

Williams, D. and Fine, M.

Stress distribution in reinforced flat sheet, cylindrical shells and cambered box-beams under bending actions. Sep 1940 37p diagrs, graphs Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $2.05

The problem of the diffusion of load among the stringers of a plane reinforced sheet, when the applied forces produce no resultant bending moment tending to bend the sheet in its own plane, has already been considered in a previous report. The present work deals with flat sheets bent in their own plane by transverse loads and with cylindrical and tapered shells under similar bending actions. The results are applicable to monocoque fuselages and skin-covered wings where the camber is appreciable. It is shown that a cylindrical shell of circular cross-section uniformly reinforced with stringers behaves exactly in accordance with the ordinary engineering theory of bending and the stresses are unaffected by "shear-lag." It is also shown that the suitable variation of the stringer sizes or stringer spacing round the periphery of the section, shells having cross-sections other than circular may have stress distributions strictly in accordance with the ordinary engineering theory of beams. By combining such stringer variation with a suitable peripheral variation of the skin thickness it is possible not only to obtain stresses exactly in accordance with engineering theory but to ensure that the applied loads are efficiently resisted by the material at disposal. The problem of the cambered box-beam with heavy corner flanges and with the cambered faces reinforced with a large number of stringers is given special treatment and a working approximation readily applicable in practice is suggested. Working rules are given to indicate when the proportion of stringer to skin area is such as to justify the use of plain engineering theory. ARC RM 2099.

PB 95276

Williams, D. H. and others.

Tests on four circular-back aerofoils in the compressed air tunnel. Jun 1946. 35p Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $2.05

Tests have been carried out on four circular-back aerofoils (with flat undersurfaces) of thickness/chord ratios of 5, 10, 15 and 20 per cent. At $R = 0.3 \times 10^6$, a hump was observed in the lift curves at about $\alpha_0 = C$, most marked on the thick sections. As R was increased the hump decreased until it disappeared at about $R = 4 \times 10^6$. Above that value of R, no further change was observed. There were very large scale effects on these models, shown best by plotting D_L at a given α_0 against R. For example, on the 15 percent section the values of D_L at $\alpha_0 = 0$ for $R = 0.1 \times 10^6$, 0.3×10^6, 1×10^6 and 6×10^6 are respectively—0.05 + 0.83, 0.75, 0.48. There was no scale effect on C_L max. The 5, 10 and 15 percent sections were also tested with 5 percent of the chord cut from the leading edge and then with a further 5 percent removed and the nose rounded in each case. No appreciable changes were observed below $R = 2 \times 10^6$, but at higher values of R there were large increases in C_L max. due to the rounding. With the second rounding, C_L max. reached its highest value at about $R = 4 \times 10^6$ and decreased above that value due to earlier stalling. The effect of rounding on the 5 percent section was small compared with that on the thicker sections. An appendix gives an account of previous work on circular-back sections carried out in other laboratories and comparisons are made with results given in this report. The only previous work covering a wide range of thickness ratios was that of Gutsche, who went up to $R = 0.7 \times 10^6$. Very good agreement was found with his results. ARC RM 2301.

—82231

PB 94443

Williams, W. C.

Flight investigation of internally balanced sealed ailerons in the presence of a balanced split flap. May 1942. 10p photo, drawings, graphs Mi $1.25 Ph $1.25

Flight tests were made with a modified Ryan ST airplane to determine the effect on aileron characteristics of various arrangements of balanced split flaps covering that portion of the wing span occupied by the ailerons. NACA recording instruments were used to determine aileron effectiveness. With the flaps fully extended, the aileron effectiveness was reduced by approximately 18 percent of the effectiveness measured with ailerons alone. For the partly retracted positions of the flap, the corresponding reduction was of the order of 60 percent. NACA L-242.

PB 92613

Williams, D. and others.

Distribution of stress between spar flanges and stringers for a wing under distributed loading. Jun 1939. 49p photos, diagrs, graphs Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $2.65

Part I of the report is devoted to a review of past work on the distribution of stress in stringer-reinforced sheet. Part II describes the application of the "Minimum Potential Energy" principle to the solution of the problem of the flat cover of a box-beam. The skin is reinforced by stringers and its two longitudinal edges are connected to the heavy flanges of the spars that form the sides of the box section. The solution takes account of an arbitrary load distribution at the spar flanges as well as of equal and uniform cross-section, otherwise only a restricted number can be treated without excessive numerical work. In Part III numerical examples of the various cases considered in Part II are worked out, partly in order to demonstrate to the computer how to proceed, and partly

to form a basis upon which to make a few general statements of a practical kind concerning the effect on the stress distribution of varying some of the more important parameters of the problem. These generalisations and other conclusions drawn from the work done are given in Part IV of the report. They are summarised here as follows: (a) With a distributed axial load along the heavy flanges bounding the longitudinal edges of the sheet, to represent the effects of distributed transverse loading on the wing, it is found that engineer's theory gives a correct stress distribution for some particular cross-section of the sheet, usually situated about one-half or two-thirds of the span from the free outer end. Outside this section the stringers carry a heavier stress than the flanges themselves but from that section to the root the flange stress is progressively greater than the stringer stresses. (b) The use of flanges that are well tapered to suit the load tends to even out the stress distribution as between flanges and stringers. (c) The use of thick sheet and small stringers are also favourable factors for equalising the stresses, thin sheet or heavy stringers having naturally the opposite effect. (d) Unfixing the stringers at the inner end affects the stress distribution over a distance equal to a sheet width from that end, the stringer stresses dying away with consequent increase in the flange stress. An important effect in this case is the large concentration of shear stress in the sheet adjoining the flange at its fixed end, suggesting that some degree of sheet reinforcement in this region might be expedient in practice. It is proposed to extend the methods of this report so as to treat sheet-stringer problems for curved sheets as in a fuselage and to investigate the stress distribution around large holes in reinforced sheet. ARC RM 2098.

PB 95510

Williams, D. and Jones, R. P. N.

Dynamic loads in aeroplanes under given impulsive loads with particular reference to landing and gust loads on a large flying boat. Sep 1945. 31p Available from British Information Services, 3p Rockefeller Plaza, New York 2p, N. Y. $1.75

Impulsive loads such as landing and gust loads tend to be the deciding factor in the structural design of the wings of large aeroplanes (or flying boats). This report shows how to calculate the dynamic effects of such loads, so that the calculations may be easily carried out by the average aeronautical engineer. The method is applied to a large flying boat wing both landing and gust loads to discover whether the large flying boat is at a disadvantage, from a wing structure weight point of view, compared with the large landplane, in having the landing load concentrated at the hull. It is concluded that the flying boat wing, like the landplane wing, is likely to be designed on gust rather than on landing loads. ARC RM 2221.

—62231

PB 94406

Williams, Walter C.

Flight investigation of NACA aileron modifications for the improvement of the lateral control characteristics of a high-speed fighter airplane. Dec 1945 34p drawings, graphs Mi $2.25 Ph $5.00

A flight investigation was made to improve the lateral control of a high-speed fighter airplane. Tests were made of the airplane with the original aileron installation and with a set of modified ailerons developed by the NACA. This modification consisted of an increased balance chord and increased nose radius. In order to determine the best aileron performance with the NACA modified aileron, tests were made with various aileron-deflection ranges and riggings with the original control assembly and with an experimental differential control unit developed by the manufacturer. The test program included the speed range from 150 to 400 miles per hour. The NACA modified ailerons with either of two mechanical advantages were found to improve the aileron performance over that obtained with the original ailerons. The modified ailerons with a deflection range of ±15° and the differential control unit appreciably increased the aileron effectiveness obtainable at level-flight speeds with a 50-pound stick force, but showed a slight decrease in the effectiveness obtainable at a speed of 400 miles per hour with a 50-pound stick force. On the other hand, the modified ailerons with a deflection range of 13.4° and the modified differential control unit gave only a slight increase in the effectiveness obtainable at level-flight speeds, but gave an appreciable increase in the aileron effectibeness obtained at a speed of 400 miles per hour with a 50-pound stick force. Indications were that the aileron structure would need to be strengthened, however, before the latter arrangement could be safely used. NACA L-194.

PB 94361

Williams, Walter C.

Flight tests of the lateral control characteristics of an F6F-3 airplane equipped with spring-tab ailerons. Apr 1945. 16p photos, drawings, graphs Mi $1.75 Ph $2.50

Flight tests were made to determine the lateral control characteristics of an F6F-3 airplane equipped with spring-tab ailerons, which were developed by the Grumman Aircraft Engineering Corp. and have been made a production installation on F6F airplanes. The flight tests showed that the spring-tab ailerons had desirably light stick forces and no tendency to overbalance. Although the tabs were not mass-balanced, no flutter tendencies were indicated at speeds up to 400 miles per hour, and any oscillations following abrupt control deflections were heavily damped. The spring-tab ailerons gave 80 percent higher values of effectiveness with a 30-pound stick force at 400 miles

per hour than the original ailerons on the F6F-3 airplane. At speeds lower than 275 miles per hour, the spring-tab ailerons were less effective than the original ailerons because of restricted aileron travel as a result of the use of large stick deflection to deflect the spring tab. Recommendations are made for modifications that would increase the aileron effectiveness at low speeds without affecting the lateral control at high speeds. The modifications consist of increasing the available aileron deflection and modifying the spring-tab arrangement. Such an arrangement might however, be more susceptible to flutter than the production installation. NACA L-149.

PB 95561

Wise, Henry G., Jr. and Hertzberg, H. T. E.
Mock-up inspection of RB-45A airplane and B-45 tail cabin. Nov 1948. 7p Mi $1.25 Ph $1.25
1. Aircraft inspection 2. RB-45A (Airplane)

PB 94299

Wood, Clotaire and Zalovcik, John A.
Flight investigation at high speeds of flow conditions over an airplane wing as indicated by surface tufts. Jun 1945. 19p photos, drawings, graphs Mi $1.75 Ph $2.50

Flight tests were made at high speeds with a P-47D airplane to determine the flow characteristics, as indicated by wool tufts, on a section of the upper surface of the wing. The behavior of the tufts, which were distributed over a section of the wing from 39.5 to 52.5 percent semispan, was determined from motion pictures. The tests were made in straight flight and in turns under conditions in which airplane lift coefficients from 0.10 to 0.54 and airplane Mach numbers from 0.58 to 0.78 were obtained. The results of the tests indicated that the flow remained smooth over the test panel until the critical Mach number of the panel was exceeded by 0.08 at a lift coefficient of 0.10 and by 0.05 at a lift coefficient of 0.50. Beyond these Mach numbers, the tufts indicated unsteadiness of flow and, finally, local separation when the Mach number exceeded the critical value by 0.13 at a lift coefficient of 0.10 and by 0.10 at a lift coefficient of 0.50. Beyond these Mach numbers, the tufts indicated unsteadiness of flow and, finally, local separation when the Mach number exceeded the critical value by 0.13 at a lift coefficient of 0.10 and by 0.10 at a lift coefficient of 0.50. The region of separated flow originated in the neighborhood of 30 percent chord at high lift coefficients and 45 percent chord at low lift coefficients. Separation appeared to extend over not more than 15 percent chord. NACA L-91.

PB 94413

Wright, Ray H.
Estimation of pressures on cockpit canopies, gun turrets, blisters, and similar protuberances. May 1944. 79p photos, drawings, graphs, tables Mi $3.50 Ph $10.00

Methods are described for estimating pressure distributions over protuberances such as cockpit canopies, gun turrets, blisters, scoops, and sighting domes. These methods are applied to the estimation of the pressure distributions over spherical-segment and faired gun turrets and over the protuberances on the Brewster SB2A-1 airplane. The effects of compressibility, interference, and flow separation are discussed. It is shown that, by a combination of experimental data with theoretical methods, limiting pressures for use in determining maximum loads can in many cases be satisfactorily estimated. Much systematic experimentation is needed, however, to improve the accuracy of estimation. NACA L-201.

PB 94298

Zalevcik, John A. and Daum, Fred L.
Flight investigation at high Mach numbers of several methods of measuring static pressure on an airplane wing. Nov 1944. 18p photos, drawing, graphs Mi $1.75 Ph $2.50

A flight investigation was made to compare static pressures in subsonic and supersonic flow over an airplane wing as measured by static-pressure tubes, a static-pressure belt, and orifices flush with the wing surface. The measurements were made on the upper surface of the wing of the P-47D airplane over a range of flight conditions in which local Mach numbers from 0.34 to 1.41 were obtained at the measurement stations. For some of the tests, a total-pressure tube was mounted on the wing surface to determine its characteristics in supersonic flow. The results indicated that static-pressure measurements obtained with suitably designed and installed flush orifices, static-pressure tubes, and static-pressure belt will be in reasonable agreement for both subsonic and supersonic flow. The pressures in supersonic flow measured by the total-pressure tube mounted on the wing surface were found to be in close agreement with values predicted by theory. NACA L-90.

PB 94305

Zalovcik, John A. and Daum, Fred L.
Flight investigation at high speeds of profile drag of wing of a P-47D airplane having production surfaces covered with camouflage paint. Mar 1946. 14p photos, graphs, tables Mi $1.75 Ph $2.50

A flight investigation was made at high speeds to determine the profile drag of a P-47D airplane wing having production surfaces covered with camouflage paint. The profile drag of a wing section somewhat out-board of the flap was determined by means of wake surveys in tests made over a range of airplane lift coefficients from 0.06 to 0.69 and airplane Mach numbers from 0.25 to 0.78. The results of the tests indicated that a minimum profile-drag coefficient of 0.0097 was attained for lift

coefficients from 0.16 to 0.25 at Mach numbers less than 0.67. Below the Mach number at which compressibility shock occurred, variations in Mach number of as much as 0.2 appeared to have no effect on profile-drag coefficient. The variation in Reynolds number corresponding to this variation in Mach number, however, was appreciable and may have had some effect on the results obtained. Comparison of the Mach number at which shock losses were first evident in the wake with the critical Mach number indicated that shock was not evident until the critical Mach number was exceeded by at least 0.025. NACA L-98.

PB 94371

Zalovcik, John A. and Wood, Clotaire.

A flight investigation of the effect of surface roughness on wing profile drag with transition fixed. Sep 1944. 13p photos, graphs, tables Mi $1.75 Ph $2.50

A flight investigation was made on a wing section of a P-47D airplane to determine the effect of roughness on wing profile drag with transition fixed far forward. Surveys of the wake were made for two surface conditions with transition fixed by a thread at 5 percent chord back of the leading edge on the upper and lower surfaces. One of the surveys was made with the surfaces smooth; the other survey was made with the surfaces roughened by an application of camouflage paint behind the thread. The surface roughness produced by the camouflage paint was made up of particles of about 0.0012 inch in height and numbering roughly 40,000 per square inch. The results of the investigation indicated that the roughness increased the turbulent skin friction by an amount corresponding to an increase in section profile-drag coefficient of 0.0013, or 16 percent, at a lift coefficient of 0.16 and a Reynolds number of 17×10^6. Below the Mach number at which shock occurred, variations in Mach number of as much as 0.16 appeared to have no appreciable effect on the section profile-drag coefficients of either the smooth or roughened surfaces with transition fixed. NACA L-159.

PB 94352

Zalovcik, John A.

Profile-drag coefficients of conventional and low-drag airfoils as obtained in flight. May 1944. 12p photo, drawings, graphs Mi $1.75 Ph $2.50

The results of flight investigations of the profile drag of several carefully finished conventional and low-drag airfoils are presented. The results indicated that in all cases lower profile-drag coefficients were obtained with the low-drag than with the conventional airfoils over the range of lift coefficient tested and that, for comparable conditions of lift coefficient and Reynolds number, the low-drag airfoils may have profile-drag coefficients which are at least 27 percent lower than the profile-drag coefficients of the conventional airfoils. NACA L-139.

PB 94252

Zalovcik, John A. and Wood, Clotaire

Static-pressure error of an airspeed installation of an airplane in high-speed dives and pull-outs. Feb 1946. 11p photos, diagrs, graphs Mi $1.75 Ph $2.50

Tests were made in high-speed dives and pull-outs to determine, by combined radar-optical tracking equipment, the static-pressure error of an airspeed-head installation on a P-51B airplane. The installation included a pitot-static head mounted on a boom 95 percent chord ahead of the leading edge of the wing near the tip. The tests were made in dives at flight Mach numbers up to 0.75 and included pull-outs up to 4g normal accleration.

The results indicated that the static-pressure error did not vary with Mach number by more than about 1 percent of the impact pressure over the range of conditions investigated. NACA L-43.

Instruments

PB 95802

Crook, M. N. and others.

Studies of the effect of typographical spacing on the legibility of numerals under vibration. Dec 1948. 18p tables Mi $1.75 Ph $2.50 Mimeo: $.10

1. Instruments, Aeronautical—Marking 2. AAF TSEAA MR 694-10

PB 94415

Goodman, Jerry

NACA Mach number warning device for use in flight. Jul 1944. 13p photos, drawing, graph Mi $1.75 Ph $2.50

An instrument for warning the pilot of the approach of the airplane to critical speed conditions has been developed at the Langley Memorial Aeronautical Laboratory. The device closes a contact that completes the electrical circuit of a suitable warning indicator when a predetermined limiting Mach number is approached. The operation of the instrument is based on the relation between Mach number and the ratio of impact pressure to total pressure. These pressures are obtained from the pitot-static installation on the airplane. The accuracy of the device, exclusive of errors due to the pitot-static installation, is ± percent. NACA L-203

PB 95559

Henschke, Ulrich K. and Mauch, Hans A.

Blind-flying instrument with coordinate system. Jul 1948. 11p Mi $1.75 Ph $2.50

1. Instrument flying 2. Panel boards

PB 14987s

Koppe, H.

Air speed indication. Oct 1940. 25p graphs, fold table Mi $2.00 Ph $3.75

Supplement to PB 14987

I. ALSOS K-11E, translation 2. Micro GDC 10/7684T, translation

PB 94170

Moore, Charles S. and others.

The NACA balanced-diaphragm dynamometer-torque indicator. Mar 1944. 15p photos, drawings, graphs Mi $1.75 Ph $2.50

A balanced- diaphragm device for measuring dynamometer torque of single-cylinder of multi-cylinder engines is described. This device, which was developed for laboratory use, has proved to be accurate, reliable, and adaptable. Compressed air, automatically controlled, is used as the balancing and the transmitting fluid; thus, a single method of obtaining torque measurement at a remote position is provided. NACA E-139.

PB 26538r2

U. S. Air Force and U. S. Navy Dept.

Computer: Dean reckoning. Air Force-Navy aeronautical standard. Sep 1948. 1p drawings Mi $1.25 Ph $1.25

I. AN 5838-2

PB 95897

U. S. Air Force and U. S. Navy Dept.

Control panel—aircraft equipment, typical installation. Nov 1948. 1p drawing Mi $1.25 Ph $1.25

I. Airplanes—Equipment 2. AND 10480

PB 87157

U. S. Air Force and U. S. Bureau of Aeronautics.

Handbook, operation and service instructions: Type A-1 alternator, engine driven. (Westinghouse). Nov 1947. 11p photos, drawings Mi $1.75 Ph $2.50

I. Alternators

PB 81227r

U. S. Air Force and U. S. Bureau of Aeronautics.

Handbook, overhaul instructions: Pressuretrol type PB 7000A3. (Minneapolis-Honeywell). Oct 1947. 10p photos, drawings Mi $1.25 Ph $1.25

PB 94705

U. S. Air Force and U. S. Navy Dept.

Indicator: Airspeed, pitot static, maximum allowable speed, 50-650 knots. Air Force-Navy aeronautical standard. Sep 1948. 1p drawings Mi $1.25 Ph $1.25

I. Air speed indicators

—82231

PB 94724

U. S. Air Force and U. S. Navy Dept.

Indicator: Airspeed, pitot static, maximum allowable speed, 50-650 knots. Air Force-Navy aeronautical specification. Sep 1948. 12p drawings, tables Mi $1.75 Ph $2.50

I. Air speed indicators

PB 94706

U. S. Air Force and U. S. Navy Dept.

Indicator: Airspeed, pitot static, sensitive, 50-650 knots. Air Force-Navy aeronautical standard. Sep 1948. 1p drawings Mi $1.25 Ph $1.25

I. Air speed indicators

PB 94717

U. S. Air Force and U. S. Navy Dept.

Indicator: Airspeed, pitot static, sensitive, 50-650 knots. Sep 1948. 7p drawings, tables Mi $1.25 Ph $1.25

I. Air speed indicators

PB 94704

U. S. Air Force and U. S. Navy Dept.

Indicator: Airspeed, pitot static, 10-150 knots. Air Force-Navy aeronautical standard. Sep 1948. 1p drawings Mi $1.25 Ph $1.25

I. Air speed indicators

PB 94719

U. S. Air Force and U. S. Navy Dept.

Indicator: Airspeed, pitot static, 10-150 knots. Air Force-Navy aeronautical specification. Sep 1948. 6p drawing, tables Mi $1.25 Ph $1.25

I. Air speed indicators

PB 94707

U. S. Air Force and U. S. Navy Dept.

Indicator: Airspeed, pitot static, 40-400 knots. Air Force-Navy aeronautical standard. Sep 1948. 1p drawings Mi $1.25 Ph $1.25

I. Air speed indicators

PB 94718

U. S. Air Force and U. S. Navy Dept.

Indicator: Airspeed, pitot static, 40-400 knots. Air Force-Navy aeronautical specification. Sep 1948. 7p drawing, tables Mi $1.25 Ph $1.25

I. Air speed indicators

PB 94725

U. S. Air Force and U. S. Navy Dept.

Indicators: Airspeed, pitot and static pressure, general specification for. Air Force-Navy aeronautical specification. Sep 1948. 15p Mi $1.75 Ph $2.50

I. Air speed indicators

PB 93312r

U. S. Air Force and U. S. Navy Dept.
Indicators: Electrical resistance type thermometer. Air Force-Navy aeronautical bulletin. Oct 1948. 1p table Mi $1.25 Ph $1.25
Revision 1 of PB 93312

PB 95939

U. S. Air Force and U. S. Navy Dept.
Indicator; temperature, thermocouple, chromel-alumel, single, 0 to 1000°C. Nov 1948. 24p tables, drawings Mi $1.75 Ph $2.50
1. Temperature—Indicators 2. AN-1-52

PB 39836r

U. S. Air Force.
Kit: Mechanic, instrument, organizational maintenance. Oct 1947. 2p Mi $1.25 Ph $1.25
1. AAF TO 00-30-57-1

PB 34506r2

U. S. Air Force and U. S. Bureau of Aeronautics.
Overhaul instructions: Fuel gage systems. (Liquidometer). Feb 1948. 17p drawings, tablgs Mi $1.75 Ph $2.50
1. AAF TO 05-65A-5, rev. 2

PB 55649r

U. S. Air Force and U. S. Bureau of Aeronautics.
Parts catalog: Engine synchroscope, type AN5532-1, navy stock no. R88-1-2185. (Manufactured by Kollsman Instrument Div., of Square D Co., Elmhurst, N. Y.). Feb 1948. 9p photos, drawings, tables Mi $1.25 Ph $1.25
1. AAF TO 05-5E-23, rev.

PB 44363r3

U. S. Air Force and U. S. Bureau of Aeronautics.
Parts catalog: Fuel gage systems. (Liquidometer). Feb 1948. 37p Mi $2.25 Ph $5.00
1. AAF TO 05-65A-7, rev. 3

PB 44347r3

U. S. Air Force and U. S. Bureau of Aeronautics.
Parts catalog: Single indicators, autosyn indicating systems. (Eclipse-Pioneer). Dec 1947. 11p drawings, tables Mi $1.75 Ph $2.50
1. AAF TO 05-558-8-3

PB 26866r7

U. S. Air Force and U. S. Navy Dept.
Pointers—standard design of aircraft instrument. Dec 1948. 1p drawing Mi $1.25 Ph $1.25
Revision of PB 26866
1. AND 10404, revised

PB 39885r

U. S. Army Air Forces.
Kit: Mechanic, instrument, aircraft. Sep 1947. 4p tables Mi $1.25 Ph $1.25
Revision 1 of PB 39885
1. AAF TO 00-30-115-1

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PB 34503r

U. S. Army Air Forces and U. S. Bureau of Aeronautics.
Operation, service and overhaul instructions with parts catalog for army types AN 5790-6 and AN 5795-6, navy models F.S.S.C. 88-1-2720 and F.S.S.C. 88-1-2700 thermometer indicators (Weston). Aug 1947. 3p diagrs, tables Mi $1.25 Ph $1.25
1. AAF TO 05-408-12, rev.

PB 44348r3

U. S. Army Air Forces and U. S. Bureau of Aeronautics.
Parts catalog for dual autosyn indicators (Eclipse-Pioneer). May 1947. 10p tables Mi $1.25 Ph $1.25
1. AAF TO 05-55B-9, rev. 3

Engines and Propellers

PB 94125

Alquist, Henry E. and Male, Donald M.
Trends in surface-ignition temperatures. Sep 1944. 21p drawings, graphs Mi $2.00 Ph $3.75
Tests were made on a supercharged CFR engine to determine surface-ignition temperature as a function of each of three variables—fuel-air ratio, intake-manifold pressure, and surface-ignition advance—for S-3 reference fuel, benzene, methanol, and AN-F-28, Amendment-2, fuel. Surface ignition was induced by a platinum to platinum-10 percent rhodium thermocouple hot spot made of 0.040-inch wire and projecting 3/16 inch into the combustion chamber. The hot-spot temperature was controlled by heating the hot spot with an audio-frequency current. The following results were obtained from tests of the four fuels: 1. The range of the surface-ignition temperatures was between 1900° F and 2600°F. Although the absolute temperatures measured were not always reproducible, the trends and the absolute values of the slopes of the curves representing the data were. 2. Surface-ignition temperature increased approximately linearly with surface-ignition advance in degrees before top center, and the rate of increase was about the same for the four fuels. 3. At constant fuel-air ratio and surface-ignition advance, the temperatures required for surface ignition decreased about 70° F when the intake-manifold pressure was increased from 30 to 45 inches of mercury absolute. 4. Surface-ignition temperatures reached minimum values at fuel-air ratios within 10 percent of the theoretical mixtures. 5. At similar conditions, surface-ignition temperatures for the four fuels were within about 150° F of each other and, under certain conditions, fuels of presumably different, preignition characteristics, such as S-3 and benzene, had the same surface-ignition temperatures. Because not much difference was observed between the surface-ignition temperatures of the several

fuels tested, it is concluded that surface-ignition temperature is not a satisfactory criterion for differentiating between the preignition characteristics of different fuels in internal-combustion engines. NACA E-94.

PB 92607

Annand, W. J. D.

Variation with air temperature of aircraft performance, engine power and temperature, and fuel flow, as determined by flight tests on a Lancaster I. Nov 1944. 29p graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $1.60

The tests described and analysed in the present report form part of a series directed toward the investigation of various aspects of operational capability on heavy bombers. The purpose of the present analyses is to obtain the variation of engine power and supercharger compression ratio, of aircraft performance, of fuel flow and of engine oil and coolant temperatures, with change of air temperature, and to examine the applicability of present reduction methods of Lancaster aircraft. Measurements of performance fuel flow, and coolant temperature have been made on Lancaster I W.4963 in England, Khartoum and Montreal; in this way a range of air temperature of 40 deg. C. has been obtained at low altitude, and of 25 deg. C. at higher altitude. Two separate sets of four engines have been tested. The results have been analysed by the use of formulae giving linear relationships between the variables involved, and the application of statistical methods to find the best values of the coefficients in the linear equations obtained, and the limits of accuracy of these coefficients. It is concluded that the engine constants appropriate to the average Lancaster I aircraft do not differ from the standard values adopted in current reduction methods, as far as can be established from the evidence available. The current methods for reduction of level speed and climb performance are found to be adequate for the average Lancaster I; and it is deduced that they are probably adequate for other aircraft with similar engines. It is found, however, that individual aircraft may occur with values of the engine constants differing appreciably from the average. For such individual aircraft no general reduction method can be accurate; the current methods might lead to serious error in level speed at low K_V, if tests on such an aircraft were made at air temperatures differing appreciably from standard. At higher speeds and for other performance, however, current methods might be regarded as adequate even for the extreme case encountered. Current methods of correction to fuel flow for varying air temperature are not confirmed for Merlin XX or XXII with S.U. type carburettor, and for these marks and probably for other marks with similar carburettors, it is suggested that no correction to fuel flow for varying air temperature should be corrected by adding 0.002 times the observed flow for every degree centigrade by which the test temperature exceeds the standard value. Current methods for correction of oil and coolant temperatures are confirmed, for the conditions tests, viz.: climb at 2,650 r.p.m., +7 lb./sq. in. boost, or level flight at 2,650 r.p.m., +4 lb./sq. in. boost. ARC RM 2169.

PB 94326

Bailey, F. J. and Gustafson, F. B.

Charts for estimation of the characteristics of a helicopter rotor in forward flight. I. Profile drag-light ratio for untwisted rectangular blades. Aug 1944. 24p graphs Mi $2.00 Ph $3.75

Charts showing the rotor profile drag-lift ratio are presented for a helicopter rotor operating in forward flight and having hinged rectangular untwisted blades. Charts are given for a range of power input covering glides, level flight, and moderate rates of climb. Each chart expresses the relation between the lift and the profile-drag characteristics of the rotor for various combinations of pitch angle, tip-speed ratio, and solidity for a particular value of a parameter representing the shaft power input. A particular drag curve, represented by a power series, was used in preparing the charts. This curve is compared with experimental curves for typical airfoils. The method by which the charts may be used in calculating the total shaft power required for any specific flight condition is shown by an example. The charts indicate that, for the rotor with rectangular untwisted blades, one effect of increasing the shaft power input is to produce a moderate increase in the profile drag-lift ratio. They further indicate that, regardless of the amount of power used, the optimum profile drag-lift ratio is obtained at the highest pitch angles permitted by the high section angles of attack encountered on the retreating side of the rotor disk. NACA L-110.

PB 94215

Becker, John V. and Baals, Donald D.

Simple curves for determining the effects of compressibility on pressure drop through radiators. Sep 1944. 41p drawings, graphs, tables Mi $2.50 Ph $6.25

Simple curves are presented by which the basic pressure-drop characteristics of unheated tubular radiators can be corrected to operating conditions in which the radiator is heated and in which the Mach number of the tube flow is of appreciable magnitude. The only data required for the use of the curves are the radiator dimensions, the rate of heat input, the pressure and temperature ahead of the radiator, and the rate of mass flow of air through the radiator. The accuracy of the curves for predicting the compressibility effects for unheated radiators is confirmed by comparison with test data obtained from two independent sources.

An example of the use of the curves for a typical oil-cooler installation is given. NACA L-6.

PB 94474

Bell, E. Barton and DeKoster, Lucas J.

Effect of solidity, blade section, and contravane angle on the characteristics of an axial-flow fan. Dec 1942. 48p photos, drawings, graphs Mi $2.50 Ph $6.25

An axial-flow fan was tested with 6, 9, 12, 18, and 24 blades and with two different blade sections. The range of contravane angle and blade angle without contravanes was extended beyond the scope of the tests of the same fan published in NACA Report No. 729. The results indicated that suitable fan control could be achieved over a small range of quantity coefficient by varying the contravane angle; the highest efficiencies were usually obtained with the 12-blade fan; the rate of increase of maximum pressure coefficient and corresponding torque coefficient dropped with increasing solidity; and no large differences were found for the two different blade sections. Formulas are developed for computing lift coefficients from fan-characteristic data. Lift coefficients are presented for the condition of maximum fan-pressure coefficient. NACA L-304.

PB 94473

Bell, E. Barton and DeKoster, Lucas J.

Test of a dual-rotation axial-flow fan. Dec 1942. 23p photos, drawings, graphs Mi $2.00 Ph $3.75

A dual-rotation axial-flow fan composed of two oppositely rotating 24-blade rotors was built and tested. The outside diameter was 21 inches and the hub diameter was 14 1/2 inches. The fan was tested with various combinations of front and rear blade angles and with two combinations of front and rear solidities. Pressure and torque coefficients and efficiency were determined and are presented as functions of a quantity coefficient. In order to have the torque coefficients of the front and rear rotors remain nearly equal over the operating range with fixed blade angles, it was necessary to reduce the number of blades in the rear rotor to one-half the number of blades in the front rotor. More than twice as much pressure rise was obtained from the dual-rotation fan as from a previously tested single-stage fan without contravanes. The maximum efficiency of the dual-rotation fan was slightly lower than the efficiency of a single-stage fan with contravanes and higher than the maximum efficiency of a single-stage fan without contravanes. NACA L-303.

PB 94155

Bolz, Ray E. and Breitwieser, Roland

Effect of compression ratio, cooled exhaust gas mixed with inlet air, and inlet-air temperature on the knock-limited performance of a full-scale single-sylinder engine. Mar 1944. 35p drawings, graphs Mi $2.25 Ph $5.00

Test were made on a Wright R-1820 G200 single-cylinder engine at an engine speed of 1600 rpm. The tests consisted of determining the maximum permissible engine performance as limited by knock under the following conditions: 1. Compression ratio (7.0 to 10.0) without exhaust-gas dilution in the intake air and at constant inlet-air temperature. 2. Compression ratio (7.0 to 10.0) with exhaust-gas dilution (0 to 20 percent by weight of intake air) and at constant inletair temperature. 3. Inlet-air temperature (100° F to 250° F) with no exhaust-gas dilution and at constant compression ratio. The tests showed the following results: 1. Increasing the cylinder compression ratio to 10.0 from the original value of 7.0 decreased the knock-limited indicated mean effective pressure 42 percent at a fuel-air ratio of 0.06 and 24 percent at a fuel-air ratio of 0.10. The respective decreases in the indicated specific fuel consumption for these fuel-air ratios were 8 and 10 percent. 2. Decreasing the inlet-air temperature at a compression ratio of 7.0 to 100° F from the original value of 250° F increased the knock-limited indicated mean effective pressure 30 percent at a fuel-air ratio of 0.06 and 12 percent at a fuel-air ratio of 0.10. 3. The use of cooled exhaust gas mixed with the intake air raised the knock-free power of a conventional aircraft fuel. 4. The use of exhaust gas caused an increase in indicated specific fuel consumption both when the engine was operated at the knock-limited permissible performance and below this limit. 5. Exhaust-gas additions had a cooling effect on the engine head and cylinder. The exhaust-valve-guide temperature, however, always exhibited a tendency to increase with exhaust-gas dilution at fuel-air ratios below 0.065. 6. The use of exhaust gas mixed with the intake air at high compression ratios to obtain the same power output as the conventional low-compression-ratio engine decreased the cylinder temperatures. 7. At a compression ratio of 7.0, a 4° F decrease in the inlet-air temperature had the same average effect in raising the knock-limited performance of the engine as an addition of 1 percent exhaust gas to the inlet air. 8. Decreasing the inlet-air temperature from 250° F to 100° F had no appreciable effect on the temperatures of the cylinder head and barrel, though the knock-limited power output increased as much as 30 percent. For these conditions the exhaust-valve-guide temperature increased a maximum of 30° F at about 0.07 fuel-air ratio. NACA E-124.

PB 94157

Bobrowsky, A. R. and Machlin, E. C.

Artificial running-in of piston rings. Mar 1944. 31p photos, graphs Mi $2.25 Ph $5.00

The performance of sliding surfaces, such as piston rings, cylinders, journals, and bearings, in

aircraft engines is considered with reference to the surface characteristics that they posses before and after running-in, prior to service operation. The phenomena accompanying the running-in process are analyzed. Means of eliminating the running-in process and of increasing life and performance of piston rings and bearings by artificial running-in are suggested. The aspects of running-in that are considered may, in general, be applied to sliding surfaces other than piston rings. Information on the various phases of running-in have been obtained chiefly from literature. NACA E- 126.

PB 94212

Boyet, H.

Method for determining oil-cooler performance requirements in series operation. Sep 1945. 26p graphs Mi $2.00 Ph $3.75

An equation has been developed by which the over-all performance of any number of oil coolers when operating in series can be related to their performance when operating singly. This relation is of value to the designer of power-plant installations in determining the individual performance required of identical coolers connected in series to obtain a desired over-all performance. The method is strictly applicable only when there is no oil diversion and when the heat-transfer coefficients on the oil side of the individual coolers do not vary with inlet oil temperature with the coolers in series. A comparison was made of the experimental over-all performance of two conventional type 15-inch-diameter oil coolers, selected according to the analysis and equipped first with spring-loaded valves and then with rotary valves, with the desired over-all performance. The results showed close agreement between theory and experiment in the region of full oil flow through the cooler cores and in the region where heat-transfer coefficients were not affected by inlet oil temperature and confirmed the anticipated deviations at conditions favorable to oil diversion and variation in heat-transfer coefficients. The analysis made is considered applicable in the range of performance that is important in the design of oil-cooler installations. NACA L-3

PB 94430

Campbell, John P. and Hollingworth, Thomas A.

Effect on stability and control of a pusher propeller behind conventional tail surfaces as determined by tests of a powered model in the free-flight tunnel. Jan 1943. 36p photos, drawings, graphs, tables Mi $2.25 Ph $5.00

The effects on stability and control of a pusher propeller behind conventional horizontal and vertical tail surfaces have been determined in the NACA free-flight tunnel by tests of a 1/10-scale model of an NACA submerged-engine pusher airplane design. The investigation consisted of flight and balance tests at windmilling and high-power conditions with a partial-span Zap extensible flap extended and retracted. The effects of changes in vertical-tail area, horizontal-tail incidence, and center-of-gravity location were also determined. The tests showed that, with a pusher propeller located behind the tail surfaces, power caused only minor changes in stability and control. The windmilling propeller provided slight increases in longitudinal and directional stability. Application of power only slightly affected the longitudinal stability, increased the directional stability, and necessitated a small amount of aileron trim. The dihedral effect, stalling behavior, and rudder trim were not affected by power. This particular pusher design with the propeller behind the tail surfaces is considered very promising as a means of eliminating the undesirable slipstream effects of tractor propellers. NACA L-220.

PB 94200

Chapman, G. E. and Zlotowski, E. D.

Laboratory investigation of icing in the carburetor and supercharger inlet elbow of an aircraft engine. IV. Effect of throttle design and method of throttle operation on induction-system icing characteristics. Jan 1946. 14p photos, graphs, tables Mi $1.75 Ph $2.50

In order to eliminate the formation of ice on the carburetor throttle plates of an aircraft-engine induction system, two modifications of the throttle design and a variation in the method of throttle operation of the twin-barrel injection carburetor were tested. The effect of each modification was investigated under severe icing conditions at simulated engine conditions of normal rated power, maximum cruising power, and 60-percent normal rated power. Reversal of the throttle plates augmented the formation of ice. Electrically heated throttle plates were maintained free of ice under severe icing conditions by the application of 350 to 900 watts of power to each plate. The operation of the throttles by the automatic manifold-pressure regulator did not prevent the formation of ice but it did prevent the immediate drop in air flow usually caused by icing. Limiting-icing conditions were established for operation using electrically heated throttle plates but the results of the tests made on the other modification did not warrant the establishment of limiting-icing curves. NACA E-173.

PB 94169

Collins, John H. and others.

Nitrided-steel piston rings for engines of high specific power. Apr 1944. 56p photos, drawings, graphs, tables Mi $2.75 Ph $7.50

Several designs of nitrided-steel piston rings were performance-tested under variable conditions of output. The necessity of good surface finish

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and conformity of the ring to the bore was indicated in the first tests. Nitrided-steel rings of the same dimensions as cast-iron rings operating on the original piston were not satisfactory. The final design was a lighter, rectangular, thin face-width ring used on a piston having a maximum cross-head area and the proper skirt shape. Results were obtained from tests of single-cylinder and multi-cylinder engines. The thin, nitrided-steel rings were performance-tested in both nitrided and porous chromium-plated cylinder barrels with good results. The nitrided-steel cylinders were stock production items and the porous chromium-plated cylinders were worn cylinders that had been reclaimed by plating back to size. The use of nitrided-steel rings in chromium-plated cylinders offers attractive possibilities that require further investigation. Good performance characteristics of ring and cylinder barrel were obtained. Tests under dust conditions indicated that the nitrided-steel rings maintained acceptable oil control from three to four times longer than the stock cast-iron rings. Lubricating-oil consumption was somewhat higher with nitrided-steel rings than that usually encountered with the original cast-iron ring assembly when the cast-iron rings are in the best condition of run-in. The lubricating-oil consumption with nitrided-steel rings tended to improve with operating time, whereas the opposite trend was exhibited by cast-iron rings. Dust tests, in particular, should be made on the combination of thin nitrided-steel rings and chromium-plated cylinders. Extensive flight tests of the rectangular nitrided-steel piston rings are recommended. NACA E-138.

PB 94068

Cook, Harvey A. and others.

Effect of several methods of increasing knock-limited power on cylinder temperatures. Sep 1944. 19p drawings, graphs, tables Mi $1.75 Ph $2.50

The knock-limited indicated horsepower and the cylinder temperatures were determined for a Wright R-2600-8 cylinder under the following engine operating conditions:

Operating condition	Basic value	Range studied
Fuel-air ratio	0.075	0.054 to 0.117
Inlet-air temperature, °F	200	82 to 312
Water-fuel ratio	0.0	0.0 to 0.6
Cooling-air pressure drop Δp across cylinder, in. water	15	5 to 30
Engine speed, rpm	2100	1500 to 2500
Spark advance, both plugs, deg B.T.C.	20	15 to 40

Each operating condition was varied in turn over the range listed while the other quantities were maintained at the basic values. At these basic operating values, the knock-limited indicated horsepower was approximately 128. The following temperature measurements are given: rear spark-plug bushing, middle rear barrel, exhaust-valve crown, front spark-plug electrode, rear spark plug electrode, and exhaust gas. The data presented relate the knock-limited indicated power and the engine temperatures. The results are summarized in the following table:

Value at which maximum knock-limited power was recorded for each operating condition	Maximum knock-limited indicated horsepower	Engine temperature, °F			
		Rear spark-plug bushing	Middle rear barrel	Exhaust-valve crown	Rear spark-plug electrode
Basic value (approx.)	128	422	327	1255	1151
Fuel-air ratio, 0.09	140	403	315	1172	1064
Inlet-air temperature, 82° F	155	430	338	1250	1160
Water-fuel ratio, 0.6	166	368	322	1180	1049
Cooling-air pressure drop Δp, 30 in. water	135	397	308	1260	1155
Engine speed, 2500 rpm	141	437	336	1285	1170
Spark advance, 15° B.T.C.	130	427	333	1270	1152

Within the scope of the tests, the following conclusions are of particular interest: 1. From the consideration of external and internal cylinder temperatures, the most satisfactory method of increasing the knock-limited power was by internal cooling with water and the least satisfactory was by increasing the engine speed. 2. As the knock-limited power was increased by lowering the inlet-air temperature, neither the external nor the internal cylinder temperatures were appreciably increased. NACA E-36.

PB 94206

Cook, Harvey A. and Brightwell, Virgina L.

Relation between fuel economy and crank angle for the maximum rate of pressure rise. May 1945. 11p graphs, table Mi $1.75 Ph $2.50

Investigations were conducted to determine whether the crank angle for maximum rate of pressure rise can be used to indicate maximum-economy spark advance. Maximum-economy spark advance was investigated in single-cylinder tests in which the crank angle for the maximum rate of pressure rise was measured. In a study of several engine variables a method was found of maintaining indicated specific fuel consumption at or near its minimum

value by holding constant the crank angle for the maximum rate of pressure rise. The results of the investigations indicate that maximum-economy spark advance is obtained by setting the spark advance so that the maximum rate of pressure rise occurs at about 3° A.T.C. NACA E-179.

PB 94344

Corson, Blake W., Jr.

Application of the method of least squares to engine-cooling analysis. Aug 1944. 34p graphs, tables Mi $2.25 Ph $5.00

The flexibility of the NACA method of correlating engine-cooling data is shown in this report to be improved when the data are adjusted analytically to the correlation equation by the method of least squares. Engine-cooling data, to be correlated graphically, must be obtained from tests in which engine-charge-air flow and cooling-air flow are carefully controlled. The least-squares method is adapted to the correlation of engine-cooling data in which the flows of charge air and cooling air, if measured accurately, may be varied in any manner. The values of the correlation exponents determined by the least-squares method are unique and are not dependent upon the curve-fairing ability of the analyst. Curve fitting by the method of least squares is discussed briefly and a solution is indicated for the values of the constants in an equation that can be identified with the engine-cooling-correlation equation. The NACA method of correlating engine-cooling data is illustrated by a graphical analysis of typical engine-cooling data. The same data are then correlated by the least-squares method. It is demonstrated that engine-cooling data not adapted to graphical correlation may be easily reduced by the least-squares method. NACA L-130.

PB 94358

Corson, Blake W., Jr. and Miller, Mason F.

Considerations of wake-excited vibratory stress in a pusher propeller. Feb 1944. 22p drawings, graphs, table Mi $2.00 Ph $3.75

An equation based on simple blade-element theory and the assumption of a fixed wake pattern is derived and fitted to available data to show the first-order relation between the parameters of propeller operation and the intensity of the wake-excited periodic force acting on the blades of a pusher propeller. The derived equation indicates that the intensity of the wake-excited periodic force is directly proportional to air density, to airspeed, to rotational speed, and to propeller-disk area. The derived equation indicates that the effect of power coefficient upon the intensity of the wake-excited periodic force is small. In normal operation the vibratory force decreases with increasing power coefficient. If a pusher propeller is used as a brake, increasing the power coefficient will increase the vibratory force. For geometrically similar pusher propellers, a propeller of large diameter will, in general, experience less wake-excited vibratory stress than a propeller of smaller diameter. Limited experimental data indicate that the wake-excited vibratory stress in a propeller increases with the drag of the body producing the wake. NACA L-146.

PB 94419

Corson, Blake W. and McLellan, Charles H.

Cooling characteristics of a Pratt & Whitney R-2800 engine installed in an NACA short-nose high-inlet-velocity cowling. Jun 1944. 54p photos, drawings, graphs, tables Mi $2.75 Ph $7.50

An investigation has been made of the cooling characteristics of a Pratt & Whitney R-2800 engine as installed in an NACA short-nose high-inlet-velocity cowling (the NACA D_S cowling). The tests were made in the LMAL 16-foot high-speed tunnel of a stub wing and nacelle combination. The internal aerodynamics of the cowling were studied for ranges of propeller-advance ratio and inlet-velocity ratio obtained by the deflection of the cowling flaps. The engine-cooling tests included variations of engine power, fuel-air ratio, and cooling-air pressure drop. The engine-cooling data have been presented in the form of the NACA engine-cooling correlation curves, and an illustrative example of the use of these curves for calculation of engine-cooling requirements in flight is included. NACA L-207.

PB 94356

Crigler, John L. and Talkin, Herbert W.

Charts for determining propeller efficiency. Sep 1944. 44p graphs Mi $2.50 Ph $6.25

A short method of estimating propeller efficiency for a given operating condition is described. The efficiency is determined for any design condition by evaluating separately from charts the induced losses and the profile-drag losses. The estimated efficiency is compared with experimental results for a wide range of operating conditions and found to be in agreement near peak efficiency. The present analysis covers single-rotating propellers of two, three, four, six, and eight blades and includes charts showing the rotational-energy loss for the given operating condition in order to assist in estimating the gain in efficiency for dual-rotating propellers. The change in efficiency to be expected from body interference is discussed. Two examples illustrating the use of the method are given in an appendix. NACA L-144.

PB 95556

Deutsch, M. L.

Theory of mechanical instability of rotors with hinges. May 1944. 17p Mi $1.75 Ph $2.50

1. Helicopters—Rotors—Balancing 2. Autogiros—Rotors

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PB 94318

Dingeldein, Richard C. and Schaefer, Raymond F.

Static-thrust tests of six rotor-blade designs on a helicopter in the Langley full-scale tunnel. Sep 1945. 20p photos, drawings, graphs, tables Mi $1.75 Ph $2.50

Measurements of the static-thrust performance of six sets of rotor blades mounted on a helicopter fuselage have been made in the Langley full-scale tunnel. The rotor blades differ in surface condition, pitch distribution, airfoil section, plan form, and solidity. These differences are largely unsystematic. The variation of rotor thrust coefficient with torque coefficient and the power required to hover are compared for each set of blades. Because of the indeterminate condition of ground restraint caused by the wind-tunnel balance house and test-chamber walls, the absolute magnitude of the data is questionable but the comparative results are believed to be reliable. A rotor of conventional construction having a doped fabric surface and relatively wide rib spacing required the most power to hover. The best hovering performance was given by two sets of plywood-covered blades of relatively low solidity, which required only slightly less power than a smoother and more rigidly constructed version of the conventional blades. The results indicate that the rotor-blade surface condition has a very important effect upon performance and that the optimum performance of any rotor design will be obtained only if the blades have a smooth and accurately contoured surface that will not deform during flight. The results further indicate that significant reductions in power can be obtained for this aircraft by the use of lower rotor speeds. NACA L-101.

PB 94218

Duberg, John E. and Luecker, Arthur R.

Comparisons of methods of computing bending moments in helicopter rotor blades in the plane of flapping. Aug 1945. 28p drawings, graphs , Mi $2.00 Ph $3.75

Several methods of computing bending moments in helicopter rotor blades in the plane of flapping are reviewed, and the results of a numerical example analyzed by four different methods are compared. The effect on computed bending moments of the tip-loss correction introduced by Wheatley is also considered. The comparison indicates that, from the standpoint of accuracy of results and ease of application, the method proposed by Cierva is the most suitable for routine analyses. The tip-loss correction is shown to have a substantial effect on computed bending moments. NACA L-9

PB 94158

Ellerbrock, Herman H. and Rollin, Vern G.

Correlation of single-cylinder cooling tests of a Pratt & Whitney R-2800-21 engine cylinder with wind-tunnel tests of a Pratt & Whitney R-2800-27 engine. Dec 1943. 47p photos, drawings, graphs, tables Mi $2.50 Ph $6.25

An equation with which it is possible to correlate the cooling characteristics of an engine has previously been developed. The validity of this equation is herein checked by the correlation of data over a wide range of engine and cooling conditions from single-cylinder laboratory tests of a cylinder of a Pratt & Whitney R-2800-21 engine. The data from the laboratory tests of this cylinder mounted on a single-cylinder test unit are compared with those from wind-tunnel tests of a Pratt & Whitney R-2800-27 multicylinder engine and a method is presented by which the pressure drop required for cooling the multicylinder engine was predicted, with little error, by means of the cooling equation for the single-cylinder engine. These predictions could be made, however, only after establishing the relationship between the hottest rear spark-plug temperature of the Pratt & Whitney R-2800-27 engine and the rear spark-plug temperature of the single-cylinder test unit. Data are also presented on the adequacy of the thermal bond between the aluminum muff and the steel barrel of the cylinder from the Pratt & Whitney R-2800-21 engine. NACA E-127.

PB 94528

Essex, Henry A.

De-icing of an aircraft-engine induction system. Aug 1943. 67p photos, drawings, graphs, tables Mi $3.00 Ph $8.75

A program of tests on engine induction system de-icing by means of de-icing fluids and by heated air has been conducted in a special laboratory at the National Bureau of Standards. The induction system tested consisted of a simulated air scoop, a Hollye 1375-F carburetor, a carburetor adapter, and a Wright R-1820, G-200 supercharger rear section. The de-icing fluid injection devices used included the standard Holley alcohol vent ring (Holley part No. 2383), a modified Holley vent ring (Holley part No. 3089), a set of modified Army nozzles (part Nos. AN4023 and AN4024), and a set of modified Army nozzles which were similar to the standard nozzles except for larger exit orifices. The de-icing fluids tested were Solox D-1, isopropyl alcohol, anhydrous ethyl alcohol, S.D.30, and Shellacol. In most of the tests refrigeration icing was produced by maintaining the carburetor-air temperature at 40° F while spraying free water into the air stream at a rate of 250 grams per minute. It was found in the fluid de-icing tests made with the original Holley alcohol vent ring that it was necessary to inject de-icing fluid into the carburetor at a rate of at least 60 pounds per hour in order to attain rapid recovery of air flow and fuel-air ratio. This Holley ring, because of its poor fluid distribution, was found to be an unsatisfactory de-icing fluid injection device at lower-flow rates. However, at fluid-flow rates of 60 pounds per hour and above, rapid recovery was obtained. In some of the

tests distribution of de-icing fluid over the surfaces of the carburetor was poor, and ice formed again after recovery of initial air flow in spite of continued injection of the de-icing fluid. This phenomenon, referred to as re-icing, occurred in the de-icing tests made with the original Holley ring at fluid-flow rates below 50 pounds per hour. In a series of ice-prevention tests using Solox D-1, a minimum fluid flow rate of 50 pounds per hour was required to prevent ice from forming in the carburetor and adapter. The modified Holley ring, the orifices of which are fewer in number and smaller in diameter than those of the original type, and also the Army alcohol nozzles, were found to have much better distribution characteristics at low flow rates than the original Holley ring and, as a result, apparently eliminated the occurrence of re-icing. The time necessary to restore operable fuel-air ratio (0.065) from the extremely lean ratios accompanying refrigeration icing was usually 1 1/2 to 2 1/2 times that necessary to restore cruising air flow when either of the Holley vent rings was used as a fluid injection device with Solox-D-1. When used with isopropyl, the standard Army nozzles were superior in de-icing effectiveness to other fluid combinations at de-icing fluid flow rates of 30 to 40 pounds per hours, initial air flow being restored more rapidly and operable fuel-air ratio being restored in periods no longer than those attained with the other fluid systems. At higher rates of injection the Army nozzles were about equal to other systems. Results of several of the tests indicated that, to make the most effective use of a de-icing fluid, it should be injected into the induction system just upstream of and as close as possible to the ice formation to be removed. For removal of ice from the adapter it was found that the de-icing fluid spray should cover evenly and completely all exposed surfaces of the carburetor. The results indicated that to comply with these requirements supplementary fluid injection systems should be provided for de-icing of other parts of an induction system where ice might be expected to accumulate. Manipulation of the throttle during the first few seconds of fluid de-icing was found to hasten recovery to initial air flow rate but did not appear to have a noticeable effect on recovery of operable fuel-air ratio. It was found that the amount of fluid necessary to remove ice from the induction system was a function of the rate of air flow to be recovered and some inverse function of carburetor air temperature. The amount of fluid required was substantially independent of the rate of fluid injection at flow rates ranging from 30 to 80 pounds per hour for any given method of injection, although re-icing occured at some of the lower flow rates.

Results of several tests made to investigate the removal of impact ice formed at a carburetor-air temperature of 25° F indicated that saturated carburetor air at a temperature of 85° F was slightly superior to Solox D-1 fluid sprayed into the air stream through the modified Holley vent ring at 80 pounds per hour. The data also indicated that isopropyl alcohol injected just ahead of the carburetor through the standard Army nozzles at a flow rate of 42 pounds per hour was almost as effective a de-icing agent as either of the other two systems. When the original Holley vent ring was used with Solox D-1, it was not possible to attain adequate removal of impact ice at de-icing fluid-flow rates of either 60 or 80 pounds per hour. Isopropyl alcohol proved superior to Solox D-1 in displaying less tendency toward re-icing and greater effectiveness in the prevention of ice formations. It appeared from the results of this program that desirable characteristics of an effective de-icing fluid should include low vapor pressure, low laten heat of vaporization, and a large fusion temperature depression. All of the de-icing fluids except Solox D-1 had a slight corrosive effect on aluminum alloy. The S.D.30 fluid, which contained no inhibitor, also exhibited a corrosive effect on brass and copper. It was not possible to draw quantitative conclusions from the results of the heat de-icing tests because of unforeseen difficulties experienced in controlling the temperature and humidity of the intake air, and because the laboratory apparatus failed to simulate adequately an aircraft installation. The date indicated, however, that a reasonable amount of heat added to the carburetor air stream can be as effective in the restoration of air flow and operable fuel-air ratio as any of the fluid de-icing combinations that were tested. Heated air in the presence of free water was effective as a de-icing agent when sufficient heat was supplied to vaporize the water and raise the temperature of the moist air above limits of icing (80° F for this induction system). NACA W-45.

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